COTTON

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Number Ten
$1.00 a Year

AUGUST, 1920

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ubber Goods for
e Textile Industry

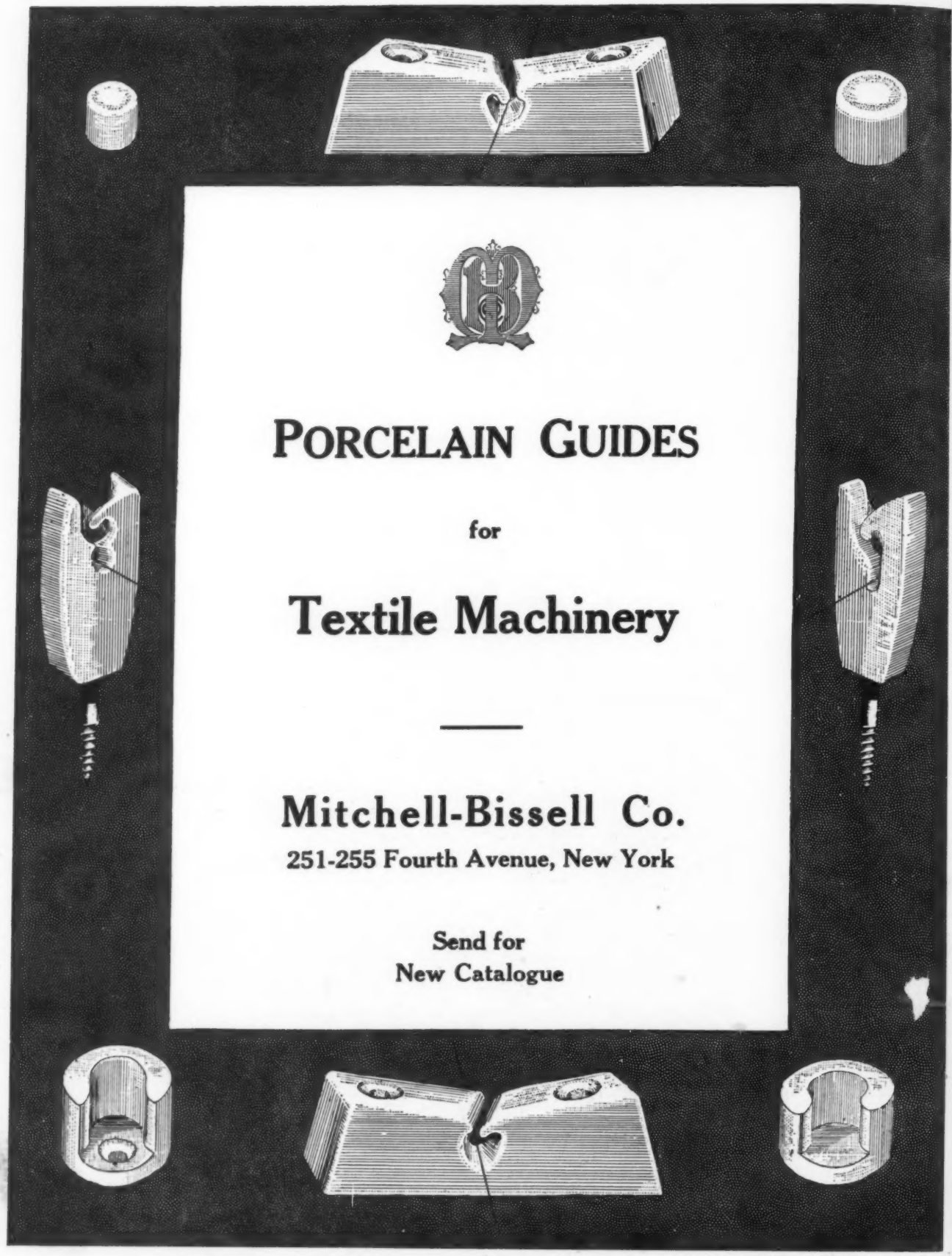
The textile trade salesmen and practical factory men of the United States Rubber Company are qualified, through study and experience, to recommend the right mechanical rubber goods for any condition which exists in this industry.

When in the market for mechanical rubber goods you can obtain the fullest cooperation of our organization through our nearest branch.

United States Rubber Company

The World's Largest and Most Experienced Manufacturer of Mechanical Rubber Goods

UNITED STATES RUBBER COMPANY
US
RUBBER SYSTEM
AND ASSOCIATED COMPANIES


PORCELAIN GUIDES
for
Textile Machinery
Mitchell-Bissell Co.
251-255 Fourth Avenue, New York
Send for
New Catalogue

MIRROR DROP WIRES

TRADE-MARK REG. U. S. PAT. OFF.

Having greatly improved the finish of our Northrop Loom Drop Wires we have adopted the trade-mark

MIRROR

to identify the drop wires of our manufacture and each shipment will contain a slip bearing this trade-mark.

We request our Northrop Loom customers to look for this name which will guarantee the high quality of the drop wires.

DRAPER CORPORATION
HOPEDALE MASSACHUSETTS

Southern Office
188 South Forsyth Street Atlanta Georgia

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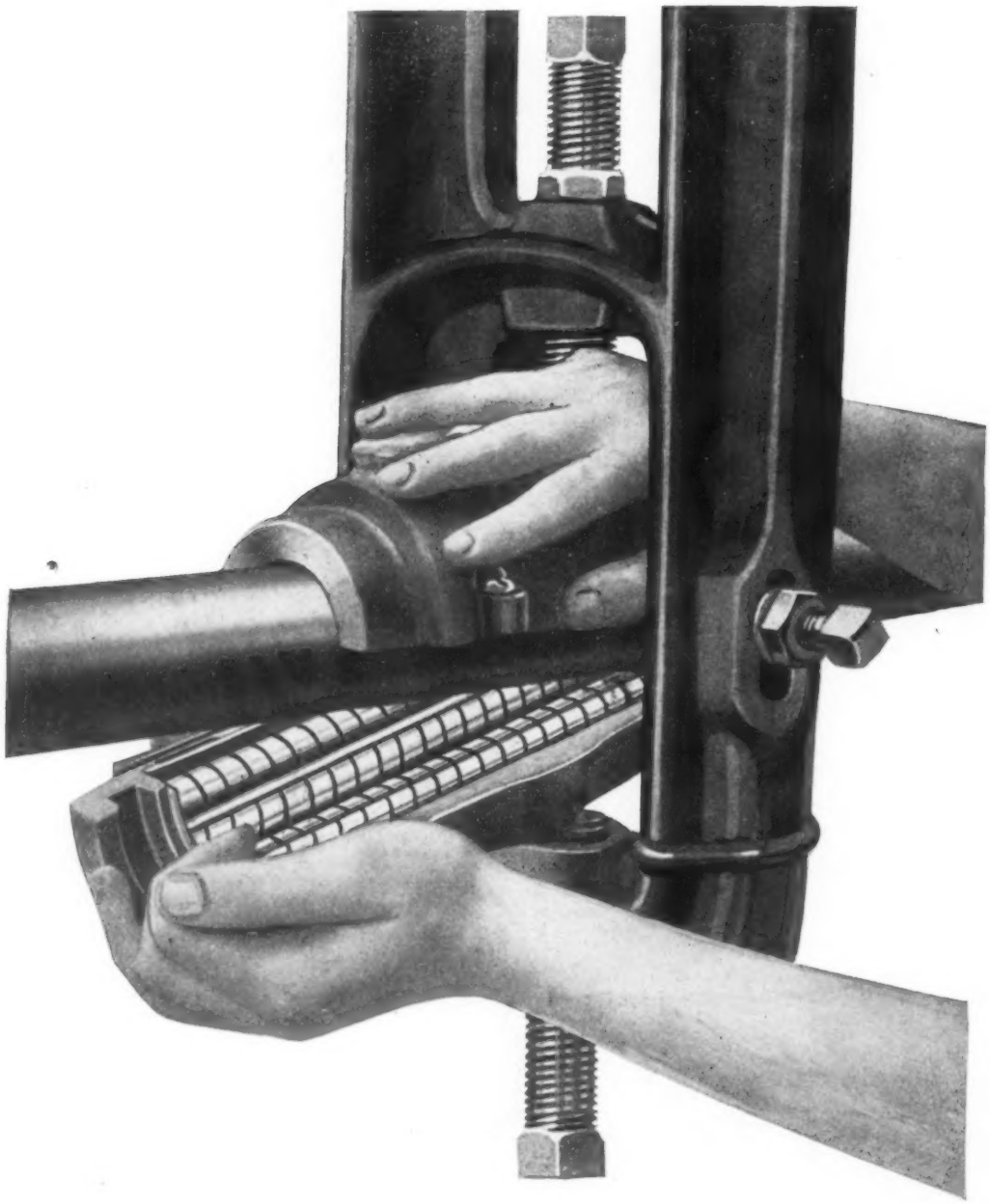
WHY ARE MODERN MEN'S SHIRTS



HYATT BEARINGS

LIKE HYATT BEARING HANGERS?

THEY'RE SPLIT!

Hyatt Roller Bearing Hangers are split throughout and can be applied to any shaft at any time without disturbing couplings, collars or pulleys. The box is opened, applied around the shaft and the two halves screwed together. Any millwright can properly apply the bearing.

Specify Hyatt Roller Bearing Hangers---their simplicity makes them trouble proof. Write at once for Bulletin No. 125.

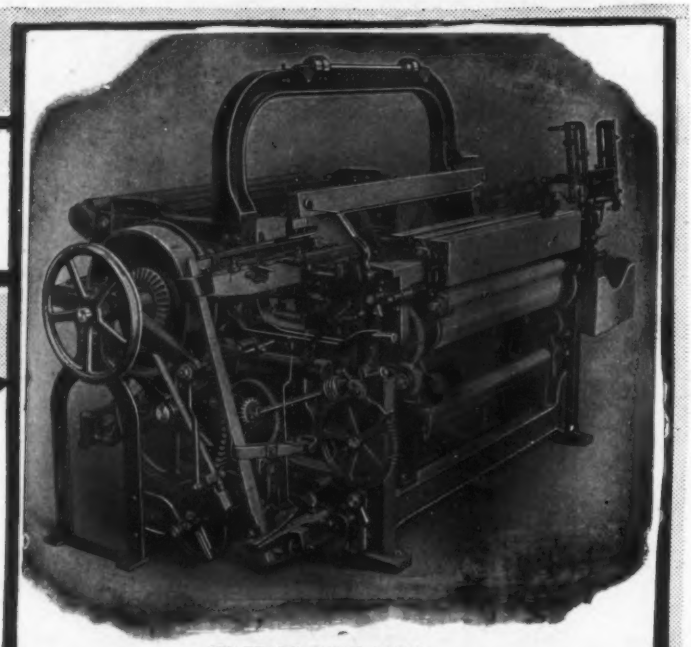
MOTOR BEARINGS DIVISION
DETROIT, MICHIGAN

HYATT ROLLER BEARING COMPANY
INDUSTRIAL BEARINGS DIVISION
NEW YORK, N. Y.

TRACTOR BEARINGS DIVISION
CHICAGO, ILLINOIS

FOR LINE SHAFTS

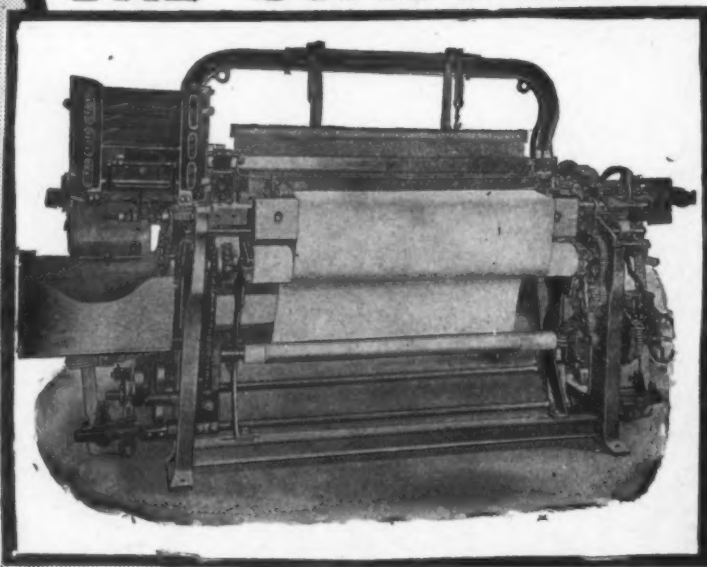
Dependable Looms



STAFFORD DUCK LOOM

The Stafford Company has for a great many years concentrated on the production of a strictly practical loom. Convincing proof of the soundness of this idea is found in the large list of repeat orders for Stafford looms from a steadily growing list of progressive mills both in this country and Canada.

THE STAFFORD COMPANY



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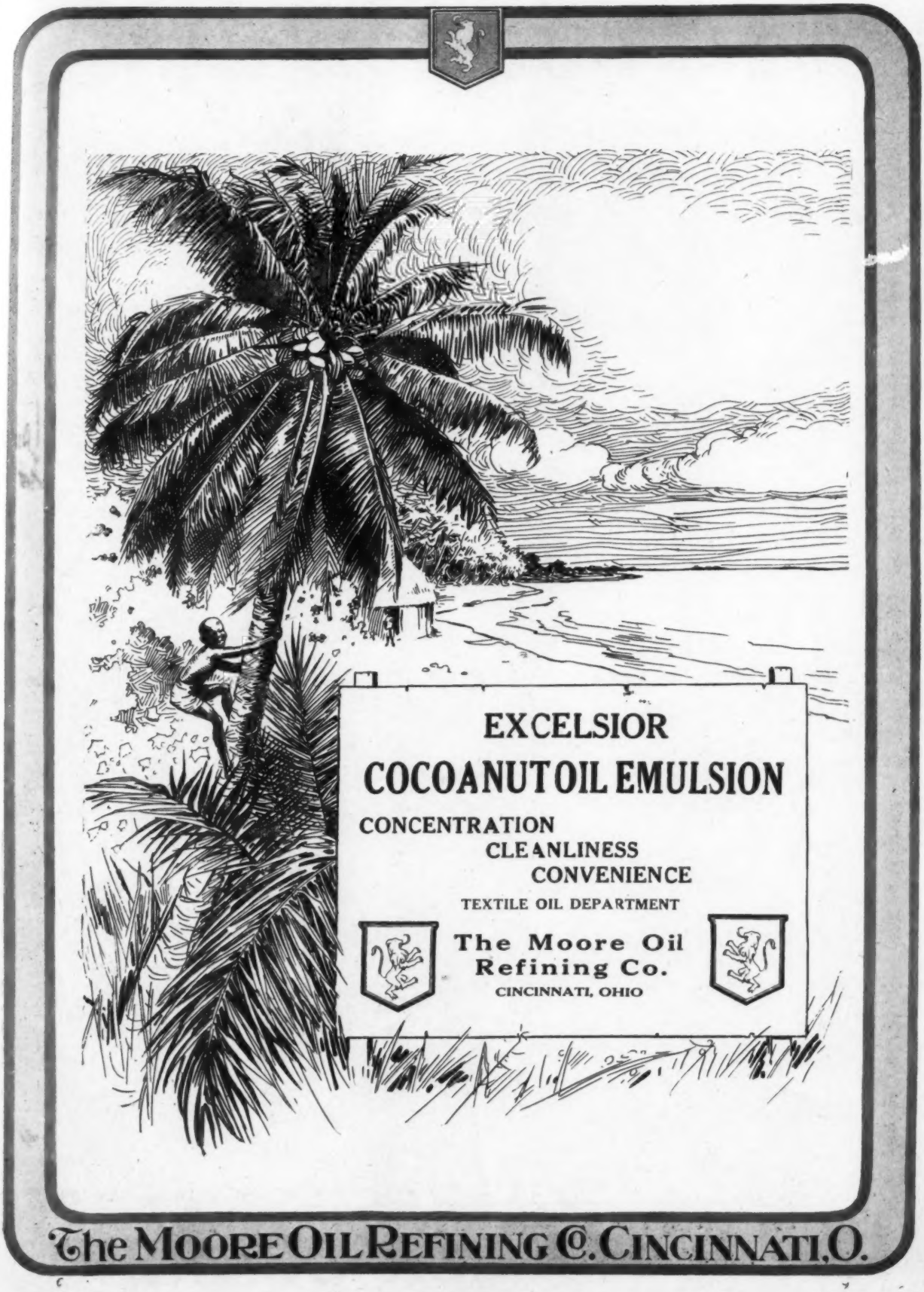
Mass.

Southern Agent
J. H. MAYES
Charlotte
N. C.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COCOANUT OIL EMULSION
CONCENTRATION
CLEANLINESS
CONVENIENCE
TEXTILE OIL DEPARTMENT
The Moore Oil Refining Co.
CINCINNATI, OHIO
The MOORE OIL REFINING Co. CINCINNATI, O.

ARE YOUR LOOMS

Hyatt Looms Are Assets

Textile machinery manufacturers who sell their customers old-fashioned, plain bearing looms are selling them liabilities — expenses — additional burdens to carry.

Antiquated, lubricant wasting, plain bearing looms can not be depended upon. They are repeatedly being shut down for repairs, causing a serious loss in production and in the worker's time.

Hyatt Roller Bearing equipped looms are assets. These antifriction bearings keep the loom at its job—production. A recent test showed that Hyatt Roller Bearings increase production 26%.

Increased production is an asset. See to it that you ask your manufacturer for Hyatt equipped looms—increased production follows naturally. Send for our data on textile machinery.

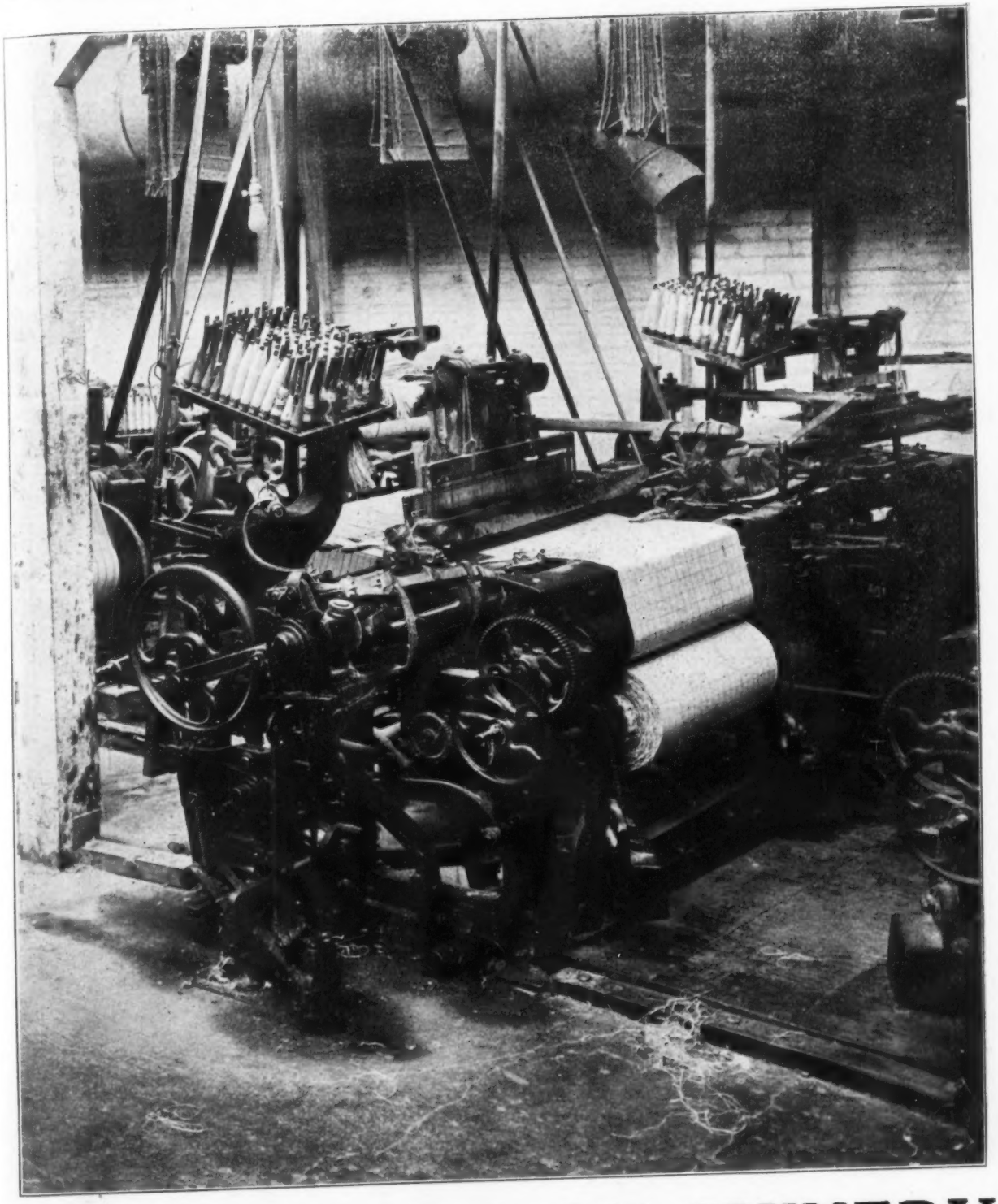
HYATT ROLLER BEARING COMPANY
INDUSTRIAL BEARINGS DIVISION
NEW YORK, N. Y.

Motor Bearings Division
Detroit, Mich.

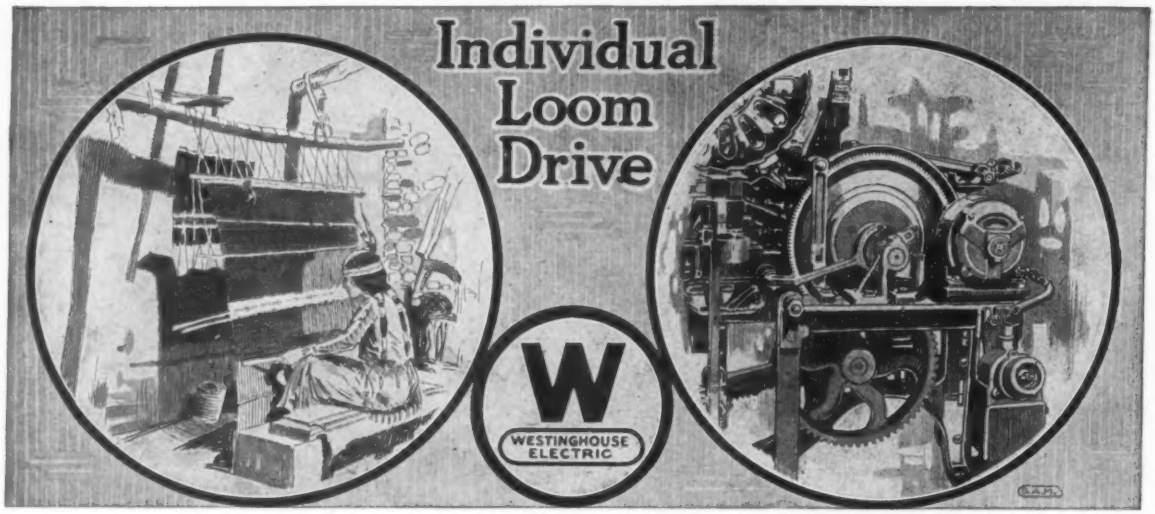
Tractor Bearings Division
Chicago, Ill.

HYATT ROLLER BEARINGS

ASSETS OR LIABILITIES?



FOR TEXTILE MACHINERY



John Sidebotham & Sons Company

MANUFACTURERS OF TAPE

PHILADELPHIA, PENNA.

Use a Large Number of Individually Driven Looms

Like the many others who have installed Westinghouse Individual Loom Motor Drive, the John Sidebotham & Sons Co. has achieved these results:

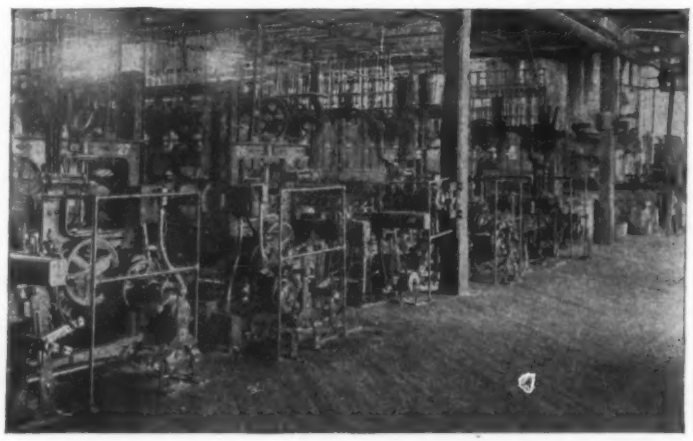
1. A product of better quality.
2. A reduction in power expense.
3. Increased output.

The satisfaction experienced with Westinghouse Individual Loom Drive is clearly indicated by the frequent repeat orders that have come from this and other customers.

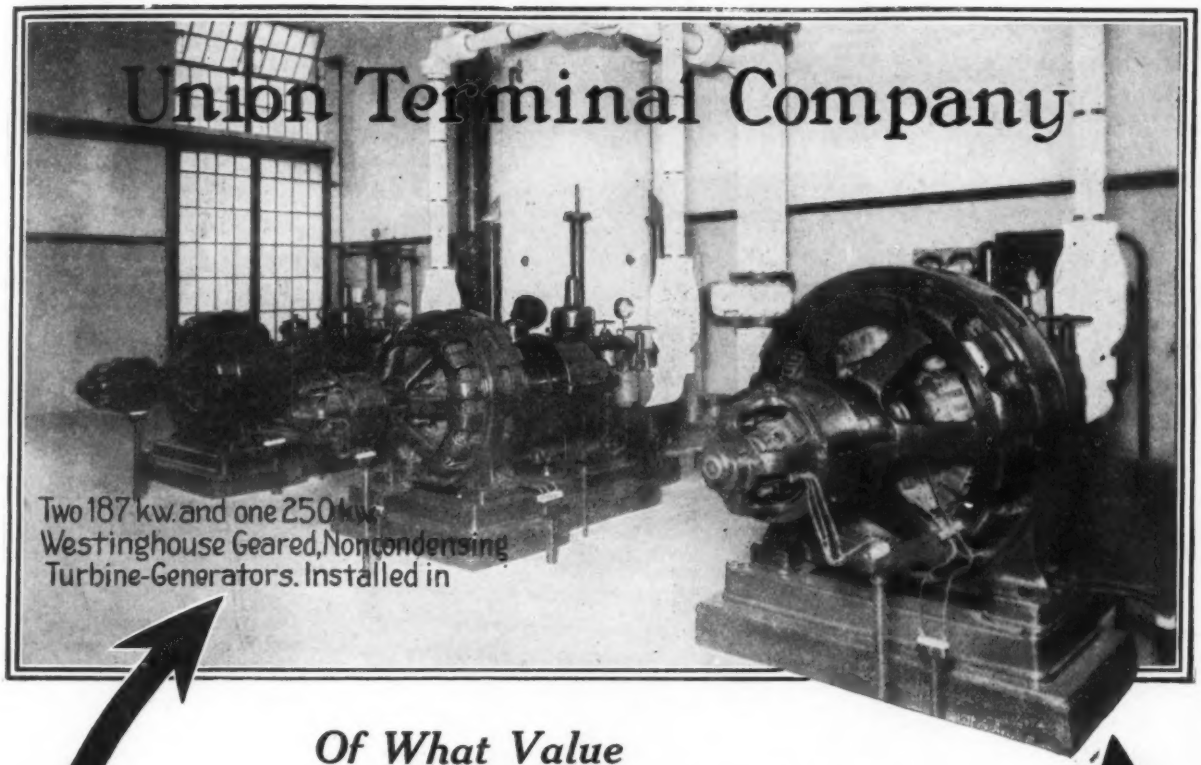
The broad experience of Westinghouse Textile Power Experts is always available in the solution of your power problems.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.

East Pittsburgh, Pa.



Westinghouse



Of What Value Are Exceptions to the Rule?

EVERY turbine manufacturer has his unusual successes, his exceptional operating records, and so on, but you would not expect to strike a true average by considering only the exceptions to the rule. This is an unsafe basis upon which to form an opinion of any manufactured product.

Your acquaintance with the high standard of reliability and efficiency of Westinghouse Steam Turbines of 1,000 to 70,000 kw. will prove of value in forming an opinion of our line of Small Turbines of from 1 to 1,000 kw.

The ***most important point to bear in mind is,*** that the troubles common to small turbines have been avoided by embodying in Westinghouse design, those features which have contributed most to the success of our large machines.

We want you to know what these features are. They are fully described in Leaflets 3867-A and 3869-A, which will gladly be mailed upon request

Westinghouse Electric & Manufacturing Co.
East Pittsburgh, Pa.

A Sales Office in Every Large American City.

1204

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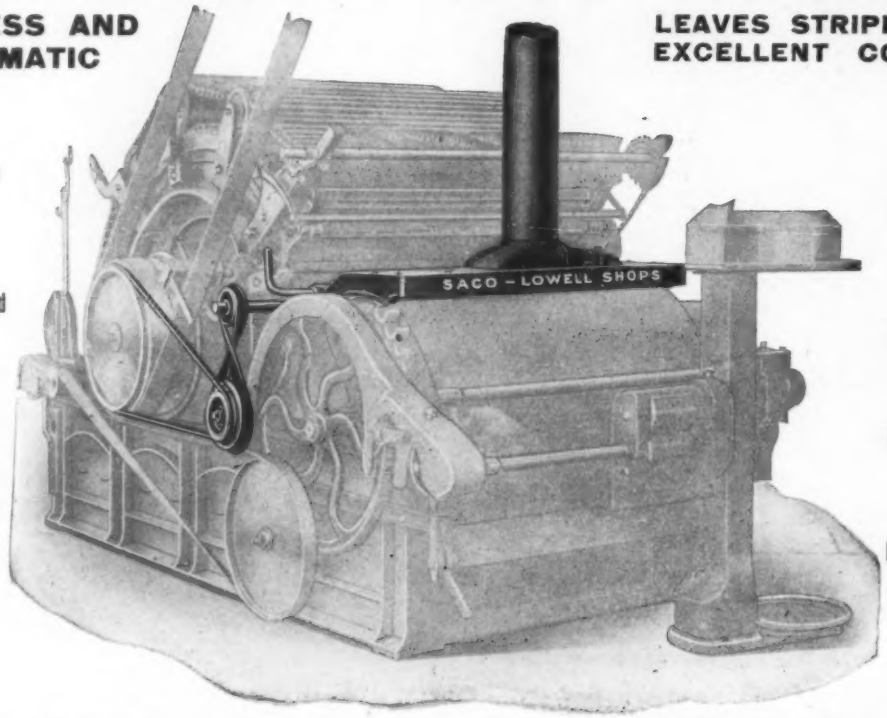
WESTINGHOUSE ELECTRIC

Westinghouse

SACO-LOWELL CARD STRIPPER

DUSTLESS AND AUTOMATIC

LEAVES STRIPPINGS IN EXCELLENT CONDITION



Economical to Operate

Saves Time and Labor

Strips Card Clean

Sanitary and Efficient

Low Cost of Maintenance

Simple, Durable Practical

Control Always Absolute

Full Information Furnished

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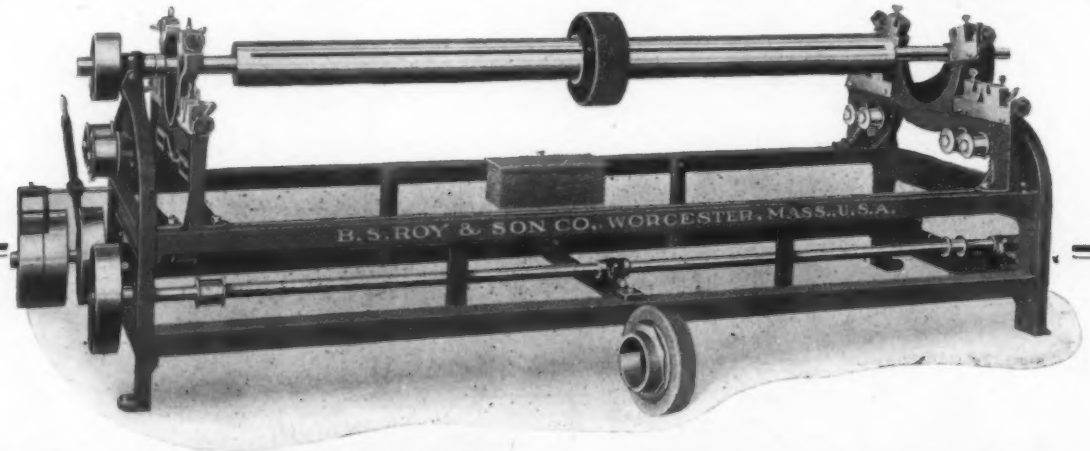


ROY GRINDERS---Long Life---Efficient Service

Roy Grinders are built to last. Selection of materials is an exact science in the Roy Plant. Workmanship is of a single standard, the very best obtainable. Inspections are frequent throughout the building process and each part must check to precise limits.

Things like these don't show on the surface of a grinder, but should be a most important factor in your buying. When you buy a Roy, you have full assurance that your grinder will give full satisfaction throughout long life.

WRITE FOR BULLETINS

B. S. ROY & SON CO., Worcester, Mass.

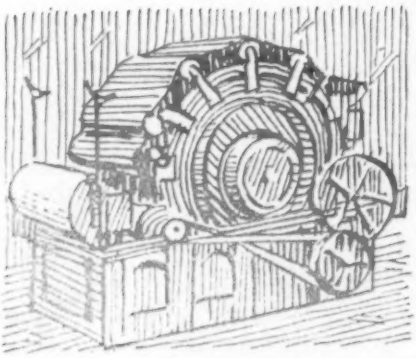
ESTABLISHED 1868

E. M. TERRYBERRY, Southern Agent, care of Howard Bros. Mfg. Co., 1126 Healey Bldg., Atlanta, Ga.

The Fourth Southern Textile Exposition will be held in Textile Hall, Greenville, South Carolina, October 18th to 23rd inclusive.

All interested in textile industries are cordially invited to attend.

Southern Textile Exposition, Inc.
Greenville, South Carolina



The Place of HUMIDITY IN COTTON MANUFACTURING

No. 2. Carding

Carding, being primarily a process of straightening and cleaning the fibres, the moisture content should be rather low—so as not to accentuate the tendency to curl or twist.

The most desirable regain will be determined by the length of staple, cleanliness and other features well understood.

Humidity's place in this step.

Much careful tabulation, study and comparison of experiences show that 5 1-2 to 6 per cent Regain will prove beneficial—or a relative humidity maintained at about 40 per cent.

Profit by "High Duty Climate"

Parks-Cramer Company

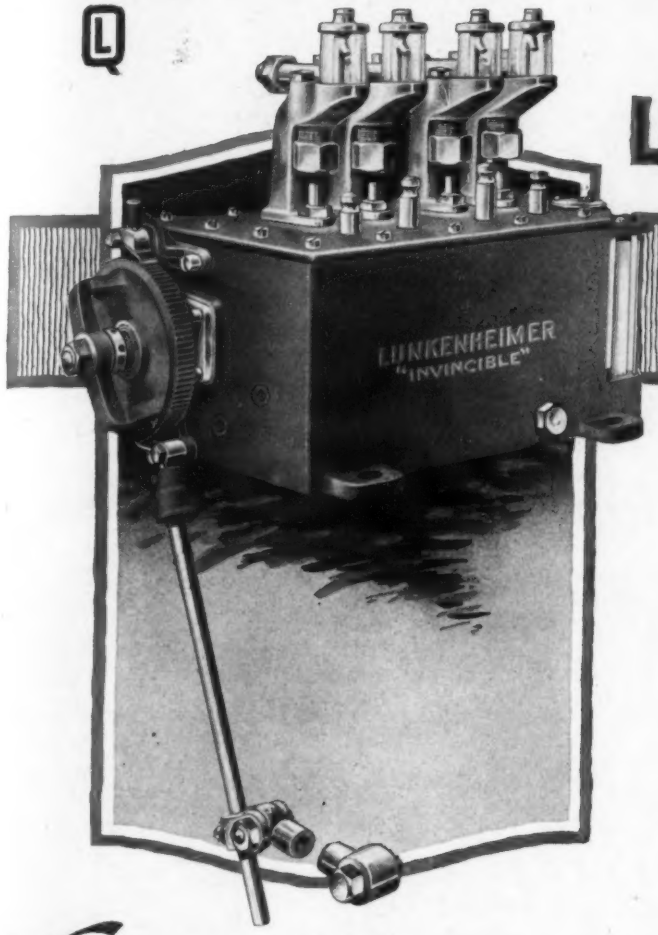
Engineers & Contractors

Industrial Piping and Air Conditioning

Fitchburg Boston Charlotte

LUNKENHEIMER

CYLINDER LUBRICATORS



AMERICA'S BEST
LUNKENHEIMER
"QUALITY"
SINCE 1862

Their installation means permanence; their simplicity and durability—continuous service

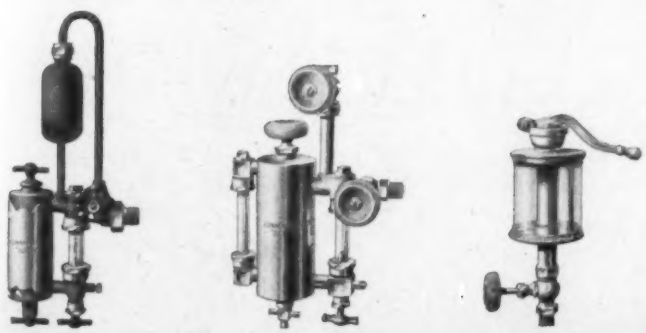
For Steam and Oil Engine, Pump and Air Compressor Cylinders

Dependable lubrication,—the delivery of the proper quantity of oil to the cylinders—is assured when power units are equipped with Lunkenheimer Cylinder Lubricators. They are positive in operation, delivering uniformly until reservoir is empty the exact quantity of oil for which the feed is set.

The feed regulation permits of close adjustment, the oil drops form perfectly and are clearly visible in the large sight-feeds. Lunkenheimer Cylinder Lubricators are made in a variety of types, including Hydrostatic, Hand and Mechanically operated,—practical in design, and durable because of the high quality materials used. All the parts are interchangeable and can be renewed should necessity require.

Equip with "LUNKENHEIMER" CYLINDER LUBRICATORS and satisfactory service is assured.

Write for descriptive booklets No. 526—AK and 572—AK



THE LUNKENHEIMER CO.
—"QUALITY"—

Largest Manufacturers of
High Grade Engineering Specialties
in the World

CINCINNATI

New York Chicago Boston London

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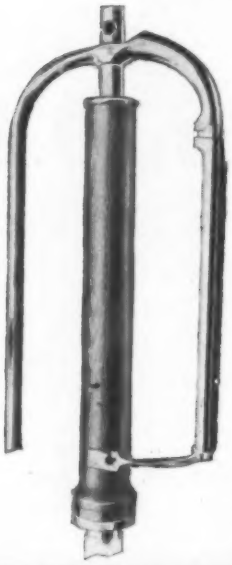
WHITIN MACHINE WORKS

ESTABLISHED 1831

TEXTILE MACHINERY



Manufacturers of

Rings,
Spindles,
Rolls,
Flyers,
Hank Clocks
for all Makes of
Spinning, Twisting and Roving Frames

MAIN OFFICE AND WORKS

WHITINSVILLE, MASS., U.S.A.

SOUTHERN OFFICE CHARLOTTE N.C.

THE SIMPLEST AND THE MOST ELABORATE

FABRICS

Are produced on

LOOMS

From the

Crompton & Knowles Loom Works

WORCESTER, MASS.

Providence, R. I. Paterson, N. J. Philadelphia, Pa.

Alexander & Garsed, Southern Representative, Charlotte, N. C.

View of Textile Section, Lawrence, Mass.

AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN

Let us lead you to the mill where yarns don't break or snarl.

Let delay, worry and endless knotting vanish for your mill girls.

See them pick up that swift, lightning-fingered technique that makes the big day's run.

Imagine the inspectors with nothing to do - the cloth that is perfect yard after yard - the skimpy pile of knit "seconds" - the costly cotton, wool and silk that is safely worked up into "firsts," where it can really earn a return to the mill.

The "ABC" Engineers want to lead you to this mill--your own mill.

The right ventilating, heating and humidifying equipment is magic medicine for fibers or yarns.

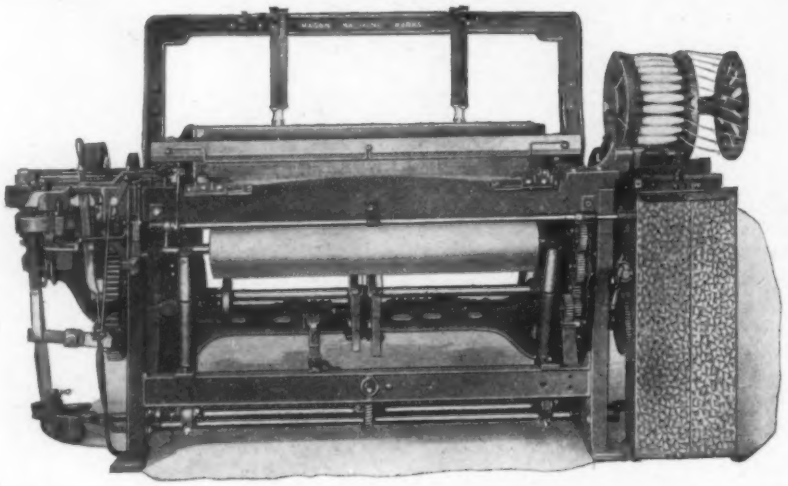
No more eternal trouble with floss and fiber that is too limp, too brittle, too curly, too loose, or that is fuzzed up or glued into a mess with static.

Whether it's the semi-raw spinning processes or the finished fabric that your mill makes, "ABC" Equipment stops the drudgery of labor on snarls and broken yarns.

Get what labor you can and keep it. Reduce labor turnover. Have new labor reach full technique and efficiency. Keep machines running. Save raw material. Reduce seconds. Increase "firsts" and increase output. "ABC" Equipment will do this for your mill, and now is the time as never before that your mill should be equipped or improved. Why not investigate? It costs nothing to learn our experience.

Sincerely yours,

AMERICAN BLOWER COMPANY



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With Battery, Warp Stop Motion, Feeler and Shuttle Lock
RANDOLPH CROMPTON'S PATENTS

Fewer Parts Standard Construction Rebounding Shuttles Overcome
Damage to Shuttles and Bobbins Overcome

Mason Machine Works **Taunton, Mass.**

E. HOWARD, Southern Agent, Greenville, S. C.

SEEBURG AUTOMATIC MUSICAL INSTRUMENTS

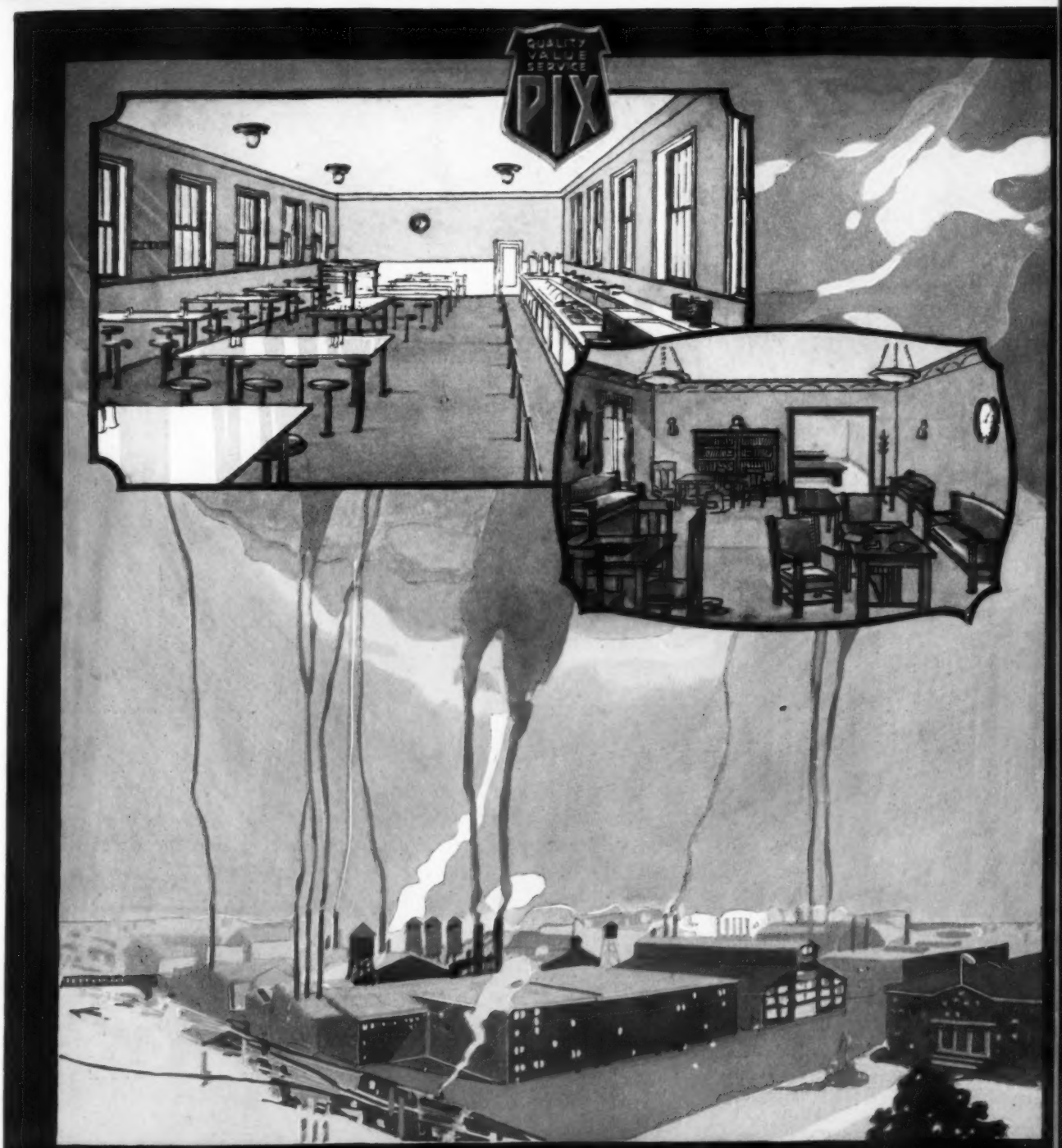
Music for your
Motion Picture Theatre
Recreation Hall
Y. M. C. A.

SEEBURG ELECTRIC PIANOS, ORCHESTRAS and PIPE ORGANS are in a class by themselves. We specialize in Automatic Musical Instruments.

Write us for catalogue and prices.

SCOFIELD AUTO-MUSIC COMPANY

CHARLOTTE, N. C.
General Southeastern Agents,



INDUSTRIAL LUNCH ROOMS
REST ROOMS. INDUSTRIAL CLUBS
INSTALLED COMPLETE

ALBERT PICK & COMPANY

208-224 WEST RANDOLPH ST. CHICAGO.

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Supplied Promptly

Shall We Se
Our Represents

The splendid Cafeteria of the Crouse-Hinds Co. Milwaukee, Wis.

—Everything for Industrial Lunch Rooms, Rest Rooms and Clubs

Producing Better Workers is a science of modern industry. It increases personal efficiency and augments production.

Institutions in every branch of industry have proved that Lunch Rooms, Rest Rooms and Clubs for employes pay actual dividends by increasing efficiency and reducing labor turnover. Only experts can handle the many problems of Industrial Welfare adequately and economically. As leading specialists in this field, we offer you facilities unequaled.

QUALITY
VALUE
SERVICE

We provide *everything* that goes into the modern Lunch Room, Rest Room or Industrial Club. Ours is a service by experts, who will lend to your problems the assistance and advice that make for friendly and profitable co-operation. *Consult them freely.*

Contented employes are essential to maximum efficiency and production. Rest Rooms like this are proving highly profitable.

A comfortable corner of the Kohler American Club, where a whole building serves the welfare of employes. It was completely equipped by us.

Ask for Book S 61
Industrial Lunch Rooms, Rest Rooms and Industrial Clubs

ALBERT PICK & COMPANY

208-224 WEST RANDOLPH STREET, CHICAGO, ILLINOIS

Sturtevant
PUTS AIR TO WORK

Your Looms, Your Power, Your Air-Conditioning

THE THREE-GREAT NECESSITIES

LOOMS are the producers. Power makes them produce. Air Conditioning makes possible the most production. These are the three great, united factors standing behind the textile mills which today are making records in production.

It is a simple matter to tell you exactly how a

Sturtevant (REG. U.S. PAT. OFF.)

AIR CONDITIONING SYSTEM

will, in your mill,

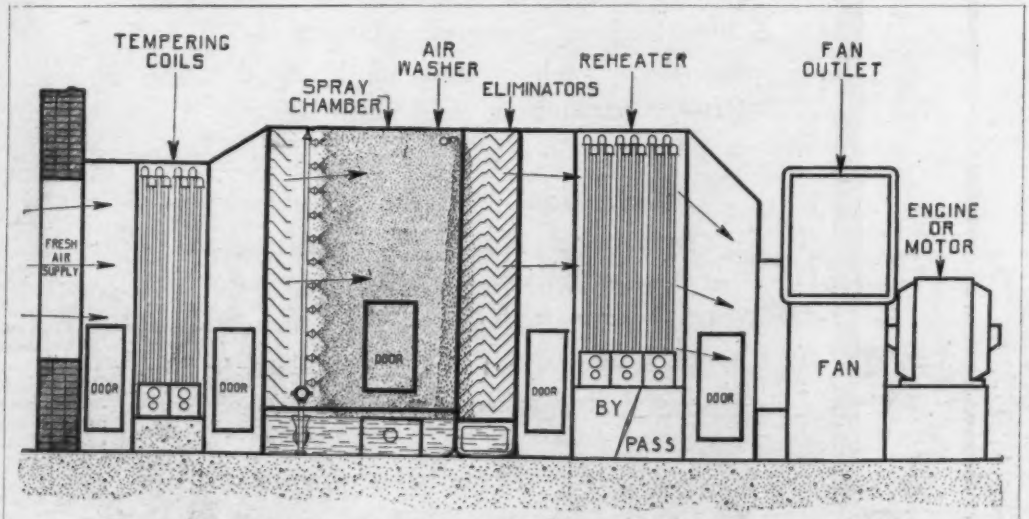
First, increase work capacity by eliminating trouble due to breaking of threads.

Second, improve work conditions by preventing "fly" or "fluff" in the air.

Third, maintain quality in the raw material and finished product.

Our illustrated booklet, "The Climate Doctors," is a handy, complete but brief, discussion, of interest to every mill owner or engineer. A copy will be gladly sent you.

This is the mark of the W. L. Fleisher engineering and construction organization of New York, who join their expert field ability with the Sturtevant high standard of design and construction, and who guarantee to you satisfaction in the installation of air-conditioning systems.



A typical Sturtevant Heating, Ventilating and Air Conditioning System

B. F. STURTEVANT COMPANY
HYDE PARK, BOSTON, MASSACHUSETTS
AND ALL PRINCIPAL CITIES

How Your Mill Village Laundry Will Increase Your Production---

WITH a mill village laundry, you can ADD the working days which you have had to DEDUCT owing to the fact that your workers have been compelled to stay at home and do their washing and ironing. Figures prove that about 300 days' labor is lost each week in the average mill—that's 15,600 DAYS THAT CAN BE SAVED EACH YEAR!

Install a mill village laundry and do the work AT COST—handle **all the washing**—household pieces as well as coats, aprons and uniforms. But be sure to arrange to IDENTIFY everything, so that nothing will be lost or misplaced. Our "National" equipment **insures** the return to each worker of EVERY PIECE **handled in your mill village laundry.**

Illustration Shows Our Improved No. 8 National Power Marking Machine

which marks all articles neatly and indelibly. Write us today—we will advise you regarding a Mill Village Laundry.

National Marking Inks—Best for all marking purposes.

TEXTILE DEPARTMENT OF

The National Marking Machine Co.

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The Service of

CLEAN FLOORS

in American Business

Carolina Cotton & Woolen Mills, Spray, N. C.
Dunean Mills, Greenville, S. C.
Cannon Manufacturing Co., Kanapolis, N. C.
Appalachian Mills, Knoxville, Tenn.
Crown Manufacturing Co., Pawtucket, R. I.
American Thread Company—5 Mills.
Arlington Mills, Lawrence, Mass.
Shenandoah Mills, Utica, New York.
Viscose Manufacturing Co., Marcus Hook, Penn'a.

CLEAN people *expect* CLEAN FLOORS not only where they live but where they work, trade and congregate.

Good stores, good office buildings, good hotels, good factories, etc., provide CLEAN FLOORS *as a service.*

In about a hundred different lines of business, floors of all kinds are Finnell-scrubbed so as to maintain CLEAN FLOORS of the highest order.

In this way, well-kept office buildings offer tenants business homes as CLEAN as their private homes.

Well-kept stores assure their customers CLEAN merchandise and CLEAN service, and receive in return CLEAN profits.

Well-kept factories give their employees CLEAN working conditions, which result in CLEAN products for their consumers.

CLEAN FLOORS are a necessary service in any successful business.

Why only the Finnell System of Power Scrubbing provides *really* CLEAN FLOORS will be told on request, directed to our Chicago offices.

AMERICAN SCRUBBING EQUIPMENT CO.

Also manufacturers of Finola Scouring Powder

General Offices: 188 N. Wabash Ave., Chicago Factories: Hannibal, Mo.

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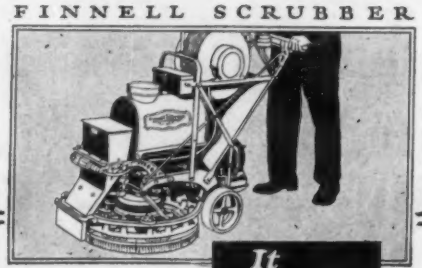
FINNELL SYSTEM

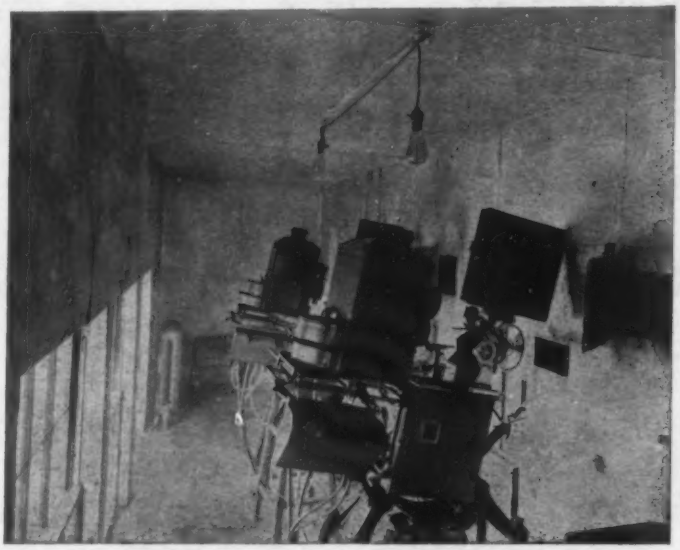
OF POWER SCRUBBING

"CLEAN FLOORS Reflect Clean Business"

FINNELL SCRUBBER



It **SCRUBS** *Electrically!*



Showing Installation of Power's 6 B Motion Picture Machines in the Tucopou Mills Theatre

The Textile Industry Demands the Best

That is why—

More Power's Projectors are used by Cotton Mills in the South than all Projectors combined.

"We Have a Special Offer"

Our experience in Theatre equipment is at your service

Southern Theatre Equipment Company

No. Nine Nassau St.
ATLANTA, GEORGIA

Eighteen Fifteen Main St.
DALLAS, TEXAS

"Water—Water Everywhere And All Too Warm to Drink"

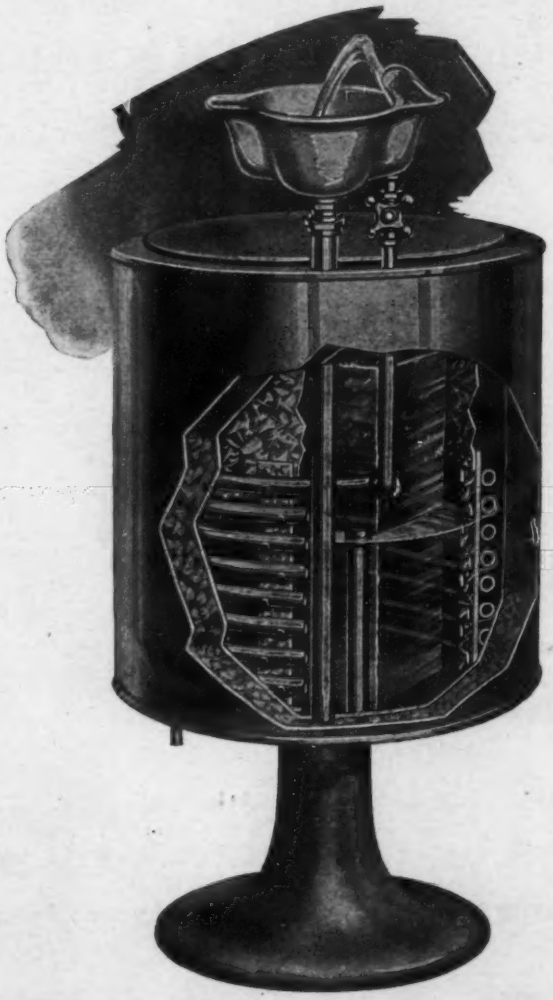
Cool, palatable Drinking Water served from sanitary Government approved PURITAN "CANTONMENT" FOUNTAINS AND COOLERS will go farther than any other thing to maintain your maximum production curve during hot summer months; besides making healthy, happy and contented employees.

PURITAN "CANTONMENT" FOUNTAINS AND COOLERS were designed to meet the demand of our Government for better drinking equipment for use in Cantonments, Naval Training Stations, etc.

We are the largest exclusive manufacturers of Drinking Equipment and, our fountains are installed in practically all of the country's largest organizations, including Schools, Parks, etc., etc.

—ILLUSTRATIVE LITERATURE UPON REQUEST—

Illustration is of our No. S-570 Cooler Fountain



Puritan Fountains and Coolers are without doubt the most efficient from every standpoint.

A POSITIVE GUARANTEE OF CLEANLINESS

"PURITAN" THE ONLY KIND YOU CAN AFFORD

ABSOLUTELY SANITARY

FOOL-PROOF PRACTICAL

Puritan DRINKING FOUNTAINS

Halsey W. Taylor Co.

Warren, Ohio.

Puritan DRINKING FOUNTAINS

"APPROVED AND ADOPTED BY ALL DEPARTMENTS OF THE ARMY AND NAVY"

HELP *your* HELP

and they will satisfy you

Provide Proper Recreation

---billiards and bowling
a clean sport

To exercise RIGHTLY *Means To PLAY!*

Bowling is the sport where you can PLAY and EXERCISE any old time —and regardless of the weather.

Let us Advise and Assist YOU in Providing

Recreation

that will
Keep YOU and YOUR EMPLOYEES
Physically Fit

Write for full information.

The Brunswick-Balke-Collender Co.

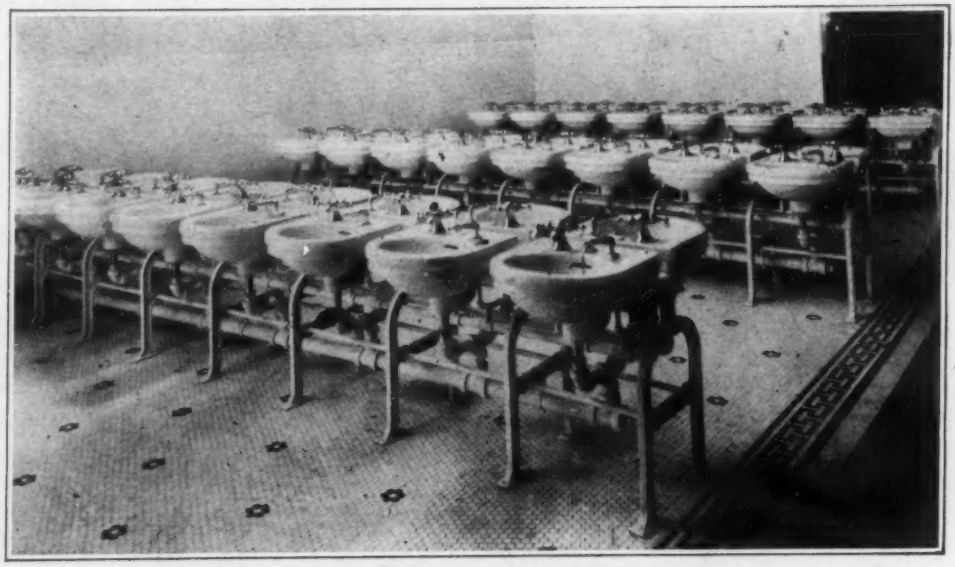
623-633 South Wabash Avenue
CHICAGO, ILLINOIS

Branches in All Cities

BILLIARDS AND BOWLING

CRANE
Factory Sanitary Fixtures

are installed in many of the largest industrial plants throughout the country.



Battery of Crane Lavatories, Bemis Bag Co., Kansas City, Mo.
J. J. Sherin Co., Plumbing Contractors

We are manufacturers of about 20,000 articles, including valves, pipe fittings and steam specialties, made of brass, iron, ferrosteel, cast steel and forged steel, in all sizes, for all pressures and all purposes, and are distributors of pipe, heating and plumbing materials.

SALES OFFICES, WAREHOUSES AND SHOWROOMS:

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FOUNDED BY R. T. CRANE, 1855

CRANE CO.

836 S. MICHIGAN AVE.

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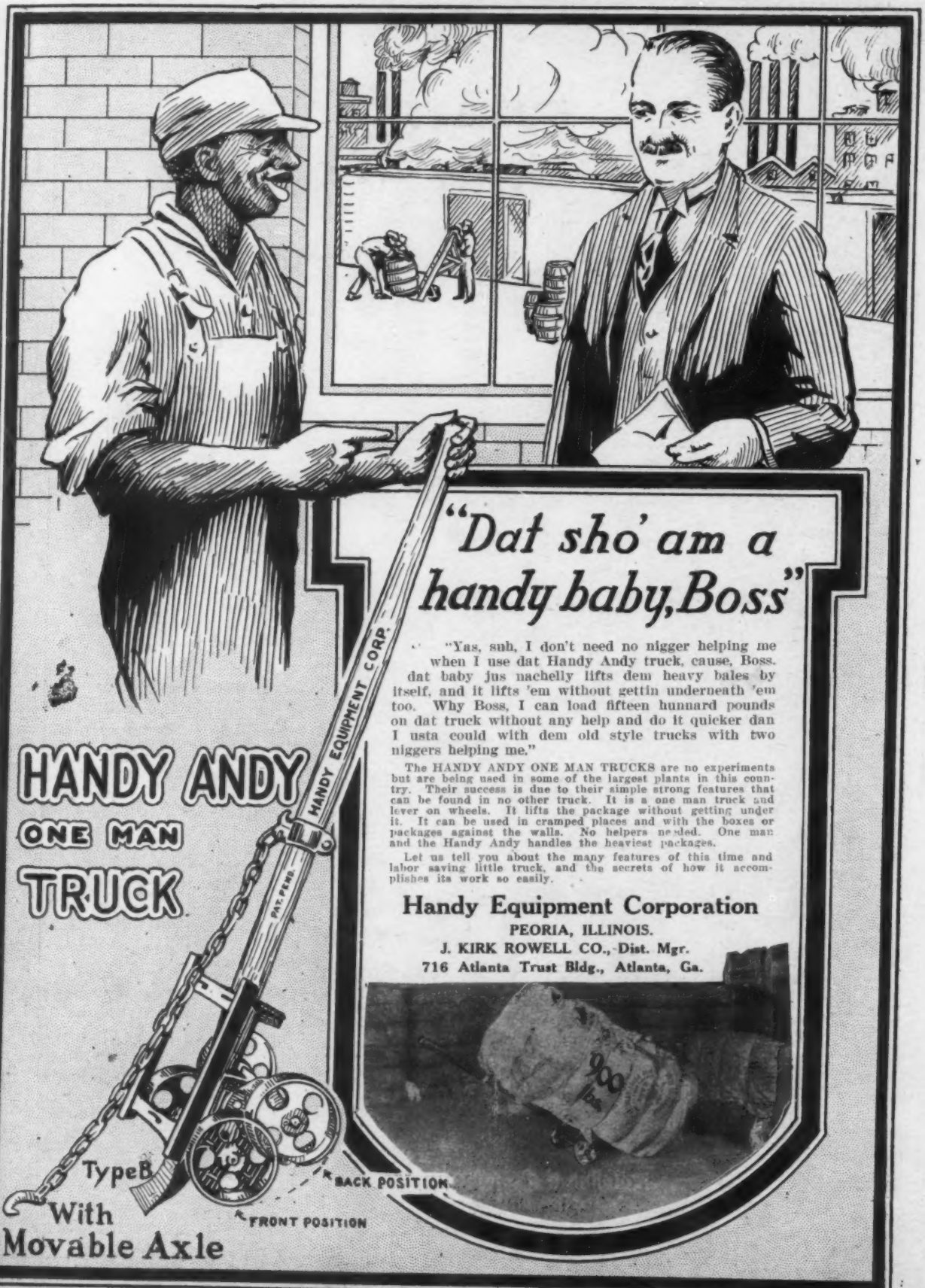
WORKS: CHICAGO AND BRIDGEPORT

CHICAGO, ROCKFORD, OSHKOSH, GRAND RAPIDS, DAVENPORT, DES MOINES, OMAHA, SIOUX CITY, ST. PAUL, MINNEAPOLIS, DULUTH, FARGO, WATERTOWN, ABERDEEN, GREAT FALLS, BILLINGS, SPOKANE, SEATTLE, TACOMA, PORTLAND, POCATELLO, SALT LAKE CITY, OGDEN, SACRAMENTO, OAKLAND, SAN FRANCISCO, LOS ANGELES

CRANE LIMITED — MONTREAL, TORONTO, VANCOUVER, WINNIPEG, LONDON, ENG., SYDNEY, N. S. W., QUEBEC, HALIFAX, OTTAWA, CALGARY.



HANDY ANDY
ONE MAN
TRUCK

Type B
With
Movable Axle

"Dat sho' am a handy baby, Boss"

"Yas, suh, I don't need no nigger helping me when I use dat Handy Andy truck, cause, Boss. dat baby jus nachelly lifts dem heavy bales by itself, and it lifts 'em without gettin underneath 'em too. Why Boss, I can load fifteen hunnard pounds on dat truck without any help and do it quicker dan I usta could with dem old style trucks with two niggers helping me."

The HANDY ANDY ONE MAN TRUCKS are no experiments but are being used in some of the largest plants in this country. Their success is due to their simple strong features that can be found in no other truck. It is a one man truck and lever on wheels. It lifts the package without getting under it. It can be used in cramped places and with the boxes or packages against the walls. No helpers needed. One man and the Handy Andy handles the heaviest packages.

Let us tell you about the many features of this time and labor saving little truck, and the secrets of how it accomplishes its work so easily.

Handy Equipment Corporation
PEORIA, ILLINOIS.
J. KIRK ROWELL CO., Dist. Mgr.
716 Atlanta Trust Bldg., Atlanta, Ga.

Do you need more men?

They're right in your own organization—wasting time and energy in your trucking department. They're the men who can only work 50% of the time—the truck helpers who load and wait, load and wait.

Cut down this method that adds overhead and kills time. Use these men to speed up shipments or turn them into efficient workers in other important departments.

McKinney One-Man Trucks make every man a producer. Helpers are eliminated. Every man can do his trucking job alone. He needs no help to get the load on its way. The McKinney One-Man Truck gives him an extra pair of hands.

With the McKinney One-Man Truck Service you can either cut down your trucking force and accomplish your present standard of work, or you can speed up shipments by 50% without adding new workers.

The illustration above shows how the McKinney One-Man Truck eliminates the extra helper. That steel package holder, gripping the box, does his work. It picks up the load.

These trucks are of light, rugged construction, easily operated and suitable for handling any kind of merchandise under the most difficult trucking conditions. There are no sharp points to injure the article being carried, and no matter how big, heavy or bulky the load, one man can handle it with ease.

Speed up shipments! Add to your force of workers without increasing your pay roll. Give the helpers real jobs—make them real producers. Double the amount of work done or cut your force in half.

Investigate this labor saving trucking system today. Send for the illustrated story of the McKinney One-Man Truck Service. See how it will dovetail with your trucking needs—answers your trucking problems.

This illustrated booklet, "The One-Man Method," will show you how McKinney One-Man Trucks can be used with different lines of merchandise. It will suggest many possible sales. Copies for your salesmen will be gladly sent upon request.

McKinney Manufacturing Company
Pittsburgh

The Lovingood Company
14 Walker St., Atlanta, Ga.

Also manufacturers of McKinney Hinges and Butts, garage and farm building door-hardware and furniture hardware.

McKINNEY *one-man* TRUCKS

They Stand the Gaff

In moving and handling materials around the plant, mill or factory the Industrial Truck or Tractor powered with

Edison Storage Batteries

has proved to be economical and efficient and one that effects big savings in labor.

Edison Batteries are made of **steel** and **iron,** with an **alkaline** (non-acid) solution, a combination of strength and endurance that guarantees years of dependable service and lowest upkeep cost.

Write for your copy of Bulletin 600-AD on Edison Batteries for Industrial Trucks and Tractors. It's a short cut to lower operating costs.

Edison Storage Battery Co.,
Factory and Main Office: Orange, N. J.

DISTRIBUTORS IN

New York	Detroit	Kansas City	Pittsburgh
Boston	Seattle	New Orleans	Scranton
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ELWELL PARKER TRUCK & TRACTOR

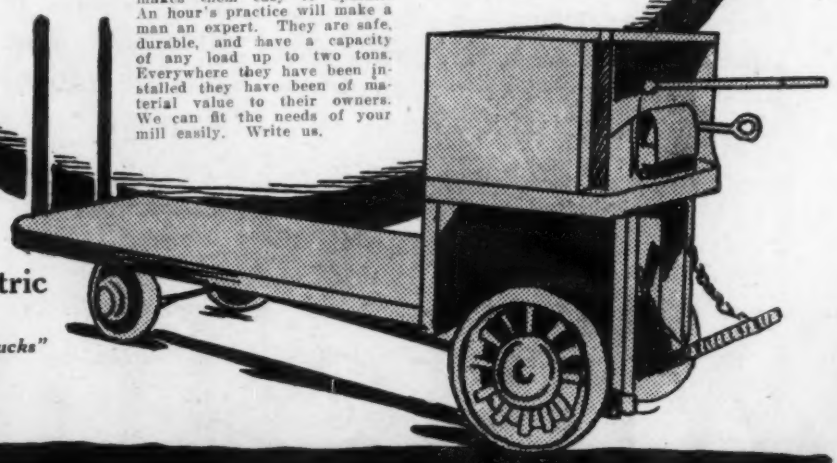
One man, an Elwell-Parker Truck, and you have ten times the quantity at twice the speed that was available under the old system of hand trucks. You save the cost of a large number of extra laborers formerly required, releasing needed men for work at other points in your plant.

PARKER TRUCKS SPELL ECONOMY

Regularity, and economy are two highly essential requirements in the maintenance of factory work with the lightest possible overhead. In figuring this out experts will tell you, the least overhead is to be found where modern, up-to-the-minute equipment is utilized. Thousands of industries use Elwell-Parker Trucks in the receiving room, the shipping room, between departments at the loading and unloading platforms and in the boiler room. WHY? Because it is ECONOMY.

Keeping every part of the plant in constant operation by supplying it with needed raw material is an essential of industrial economy. It is expensive to have to wait for materials and keep a machine standing idle as well as its operator. There are no delays like this if Elwell-Parker Trucks are at hand to make needed deliveries. You should have Elwell-Parker Trucks.

The design of our trucks makes them easy to operate. An hour's practice will make a man an expert. They are safe, durable, and have a capacity of any load up to two tons. Everywhere they have been installed they have been of material value to their owners. We can fit the needs of your mill easily. Write us.

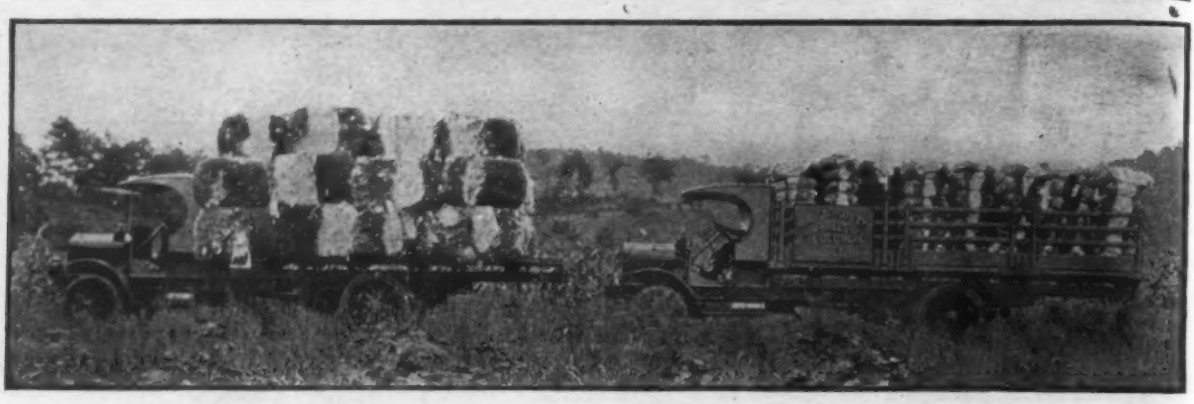


The Elwell-Parker Electric Company

"Pioneer Builder of Electric Industrial Trucks"

CLEVELAND, OHIO

Offices in all Principal Cities



Part of fleet of four White Trucks owned by Massachusetts Mills, Lindale, Georgia

PAY *for* THEMSELVES *in* SAVINGS

WHEN the Government assumed control of the railroads and trebled switching charges for moving cars of cotton from Rome, Georgia, to the plant of the Massachusetts Mills at Lindale, White Trucks were purchased to take over this work. The volume of expense saved can be realized from the fact that the mills use 40,000 bales of cotton annually.

"We are now operating three White Trucks of 5-ton and one of ¾-ton capacity," says Audrey Marshall, superintendent. "They paid for themselves during the time the increased switching charges remained in force.

"We use our trucks for hauling bales of cotton, dye-stuffs, and other materials within the plant site and from railroad sidings nearby; for transporting finished cloth from the mills to shipping points; hauling miscellaneous supplies from Rome to the mills, and for general trucking work in and about the plant. They have always given and are now giving satisfactory and economical service."

White Trucks are known for their ability to keep going day after day, year after year. They do the most work for the least money.

THE WHITE COMPANY
CLEVELAND

White Trucks

THE CHICAGO LINE

Why Tolerate Friction Losses?

With the high cost of present production, power losses are being given careful consideration; and old time methods of transmitting power are giving way to the modern S K F Ball Bearing Equipment?

Because

The Chicago Line of S K F Ball Bearing Specialties have demonstrated in actual operation greater efficiency than babbitt or roller bearing equipment.

Four thousand shops and factories in Chicago alone have adopted this modern method of transmitting power; thereby effecting a saving in power—time—lubricant.

Let us help you modernize and produce more with greater efficiency.

Among the Ball Bearing Specialties of the CHICAGO Line are:

S K F Ball Bearing Hangers
S K F Ball Bearing Loose Pulleys
S K F Ball Bearing Clutch Pulleys

Chicago Pulley & Shafting Co.

Main Office:
40 South Clinton St.
Chicago, Ill.

Factory
Menominee Falls
Wisconsin

THE CHICAGO LINE — CP&S CO. — POWER TRANSMISSION

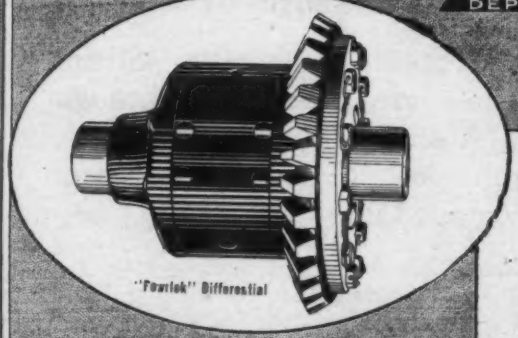
Pioneers in Ball Bearing Power Transmission Appliance

TRI-ANGLE

POWER SERVICE MOTOR TRUCK DEPENDABILITY

A Three-Fold Value

3/4 · 1½ · 2 Special & 2½ Ton Models



"Powrlok" Differential

Not Easily Stalled

You have frequently noticed ordinary trucks stalled in mud or snow, one driving wheel spinning, the other standing still.

In other words, the power, taking the easiest course, revolved the wheel **without** traction. This left the truck helpless, and was exceedingly destructive to tires.

Whenever one wheel of a TRIANGLE commences to spin in such an emergency, the "powrlok" differential automatically locks it to the other wheel.

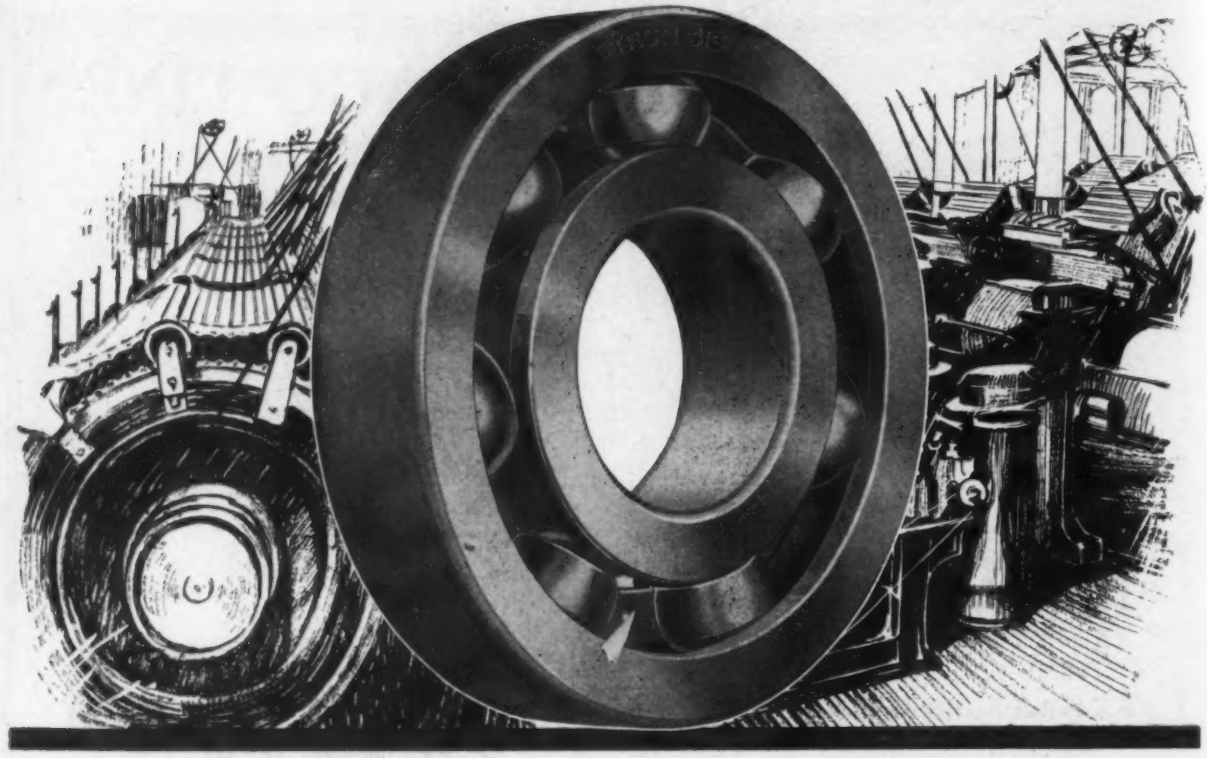
Consequently the wheel **with** traction gets power, and the sturdy TRIANGLE truck pulls itself easily out of situations which are impassable to ordinary trucks.

Write Department Z For Full Particulars

Eastern Representatives
TRIANGLE MOTOR SALES CO.
381 Fourth Ave. New York City

New England Distributors
Eugene F. Lally and Sons Co.
Boston, Mass.

TRIANGLE MOTOR TRUCK COMPANY
St. Johns, Michigan



Strom Bearings in Textile Machinery Insure a Better Product

The accuracy of Strom Bearings insures perfect and permanent adjustment on all types of textile machinery.

This results in smooth, frictionless operation so essential to a high quality of product.

On picker beaters fans, and other machinery, Strom Bearings save power, oil, time and labor and practically eliminate maintainance costs. Danger of fire from chokes and hot boxes is avoided.

In the Southern territory Strom bearings are distributed through the Aldrich Machine Works, Greenwood, S. C. Write them for detailed information.

U. S. BALL BEARING MFG. COMPANY
(Conrad Patent Licensee)
4535 Palmer St., Chicago, Ill.

Strom BEARINGS

Copyright 1920, by The Goodyear Tire & Rubber Co.

The Roller Mill Drive—and the G. T. M.

Roll drives in flour mills are pretty much all alike in the strain they impose on belting. They subject both sides of the belt to contact with the pulleys, causing a flexing action that takes the life out of the average belt.

Any unusual duty is a challenge to the G.T.M. — Goodyear Technical Man — and he called on L. T. Tucker & Co., of Frankford Mills, Frankford, Mo., to see if they could not figure out together a way to more economical belt performance, over a longer period of use.

He outlined the Goodyear Analysis Plan by which Goodyear Mechanical Goods are specified exactly to the service required, so that they will not only serve the work more effectively, but contribute their proper share to the profitable operation of the entire plant. He dwelt on the established Goodyear practice of building the belt to the work to be done, with long-run economy always the object in view.

Full co-operation was given the G. T. M. in his study of the details of the drive. The miller supplemented the G. T. M.'s measurements of pulleys, center-to-center distances, and so on, with practical data about the actual running conditions. The resulting specifications first were checked carefully, and a 35-foot, 6-inch, 4-ply Goodyear Blue Streak Belt was installed in April, 1917.

For more than three years now that Goodyear Blue Streak Belt has transmitted power on the straining roll drive without a trace of slippage, and with a minimum of stretch. Fastened with rawhide lace, it shows no sign of wear, has run trouble-free amid the ever-present dust, and has cost almost nothing for repairs. Its sturdiness has assured the fine-milled quality of the flour.

Its operating economy began with its purchase. Though Goodyear Belts usually cost a little more in the first place, this one cost 23% less than the belt it replaced. This fact, and the record it has set for unfailing performance, have brought into different service in the Frankford Mills other Goodyear Belts, each of them specified to its particular work, and all of them uniform in the construction and quality that protect our good name.

You may have a belting problem, involving either a drive or an entire plant, on which the G. T. M. could figure with profit to you. His services are at your command. Write for them, or for further information about the Goodyear Analysis Plan, to The Goodyear Tire & Rubber Company, Akron, O.

BELTING · PACKING · HOSE · VALVES

GOODYEAR

Figure this out for yourself. What would be the cost of a half day's shutdown of your plant? A pretty big sum it would be—wouldn't it? Now, suppose that shutdown were due to a failure of the belt on your main drive. It's a pretty big item to charge up against one belt, isn't it? Probably a few dollars more paid for a better belt, in the first place, would have saved you that shutdown. Moral—better belts are worth many times more than the price paid for them. Ladew Leather Belts are "better" belts. Thousands of hard-headed belt users say they are the "best" belts.

EDW. R. LADEW CO., INC.
NEW YORK, N.Y., U.S.A.
Since 1835
Branches and Distributers with Complete Stocks in All Principal Cities

Branches and distributors in all principal cities of the world carry complete stocks. See your 'phone book for local address.

Ladew
Since 1835

IN the bearings sponsored by S K F its type of anti-friction bearings have been developed to their highest perfection. And S K F further provides an engineering service not only to assume to itself proper application and use of S K F products, but to help the buyer to fully capitalize the mechanical value built into each device. This service is freely offered and is being continually broadened and advanced by laboratory research that is international in scope. You are assured a similar service behind every product bearing the mark—

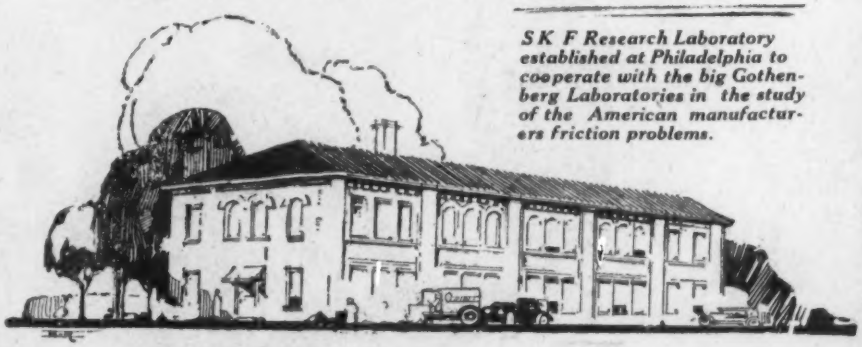
SKF

Among the S K F products now offered are:

Single row deep groove ball bearings.
Double row self aligning ball bearings.
Steel balls.
Transmission equipment.

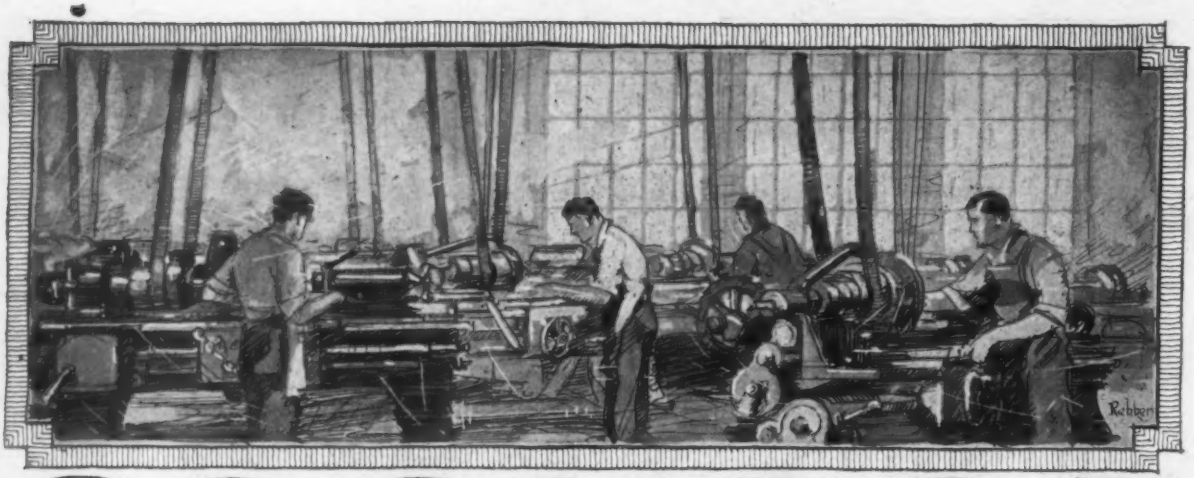
S K F Industries, Inc.
165 Broadway, N. Y. C.

Supervising
at the request of the
stockholders
The Hess-Bright Manufacturing Company
Philadelphia, Pa., U.S.A.
S K F Ball Bearing Co.
Hartford, Conn., U.S.A.
Atlas Ball Company
Philadelphia, Pa., U.S.A.



S K F Research Laboratory established at Philadelphia to cooperate with the big Gothenberg Laboratories in the study of the American manufacturers friction problems.

617



COCHECO

THE best is always the least expensive. A high quality product, even though it costs a bit more, is the most economical to purchase.

Cocheco Belting is a high quality product. It may cost more than other brands that are sold on a price basis, but it returns the difference many times in splendid service.

Cocheco Belts are made from the choicest center sections of carefully selected butts of pure oak bark tannage. No better belting can be made. They will transmit maximum power through the longest period of time.

Are you familiar with this product?
If not get all Cocheco details.

I. B. Williams & Sons

Dover, New Hampshire

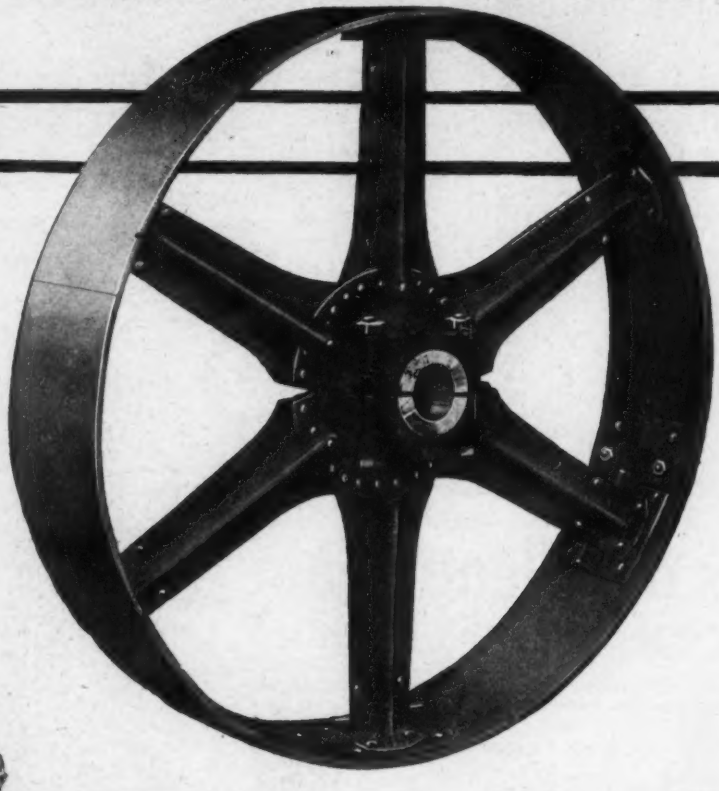
Branches: New York, Boston, Chicago

Keystone Steel Split Pulley

OPERATES UNDER LOW BELT TENSION

Rivets That Can Not Shear

STRONG LIGHT



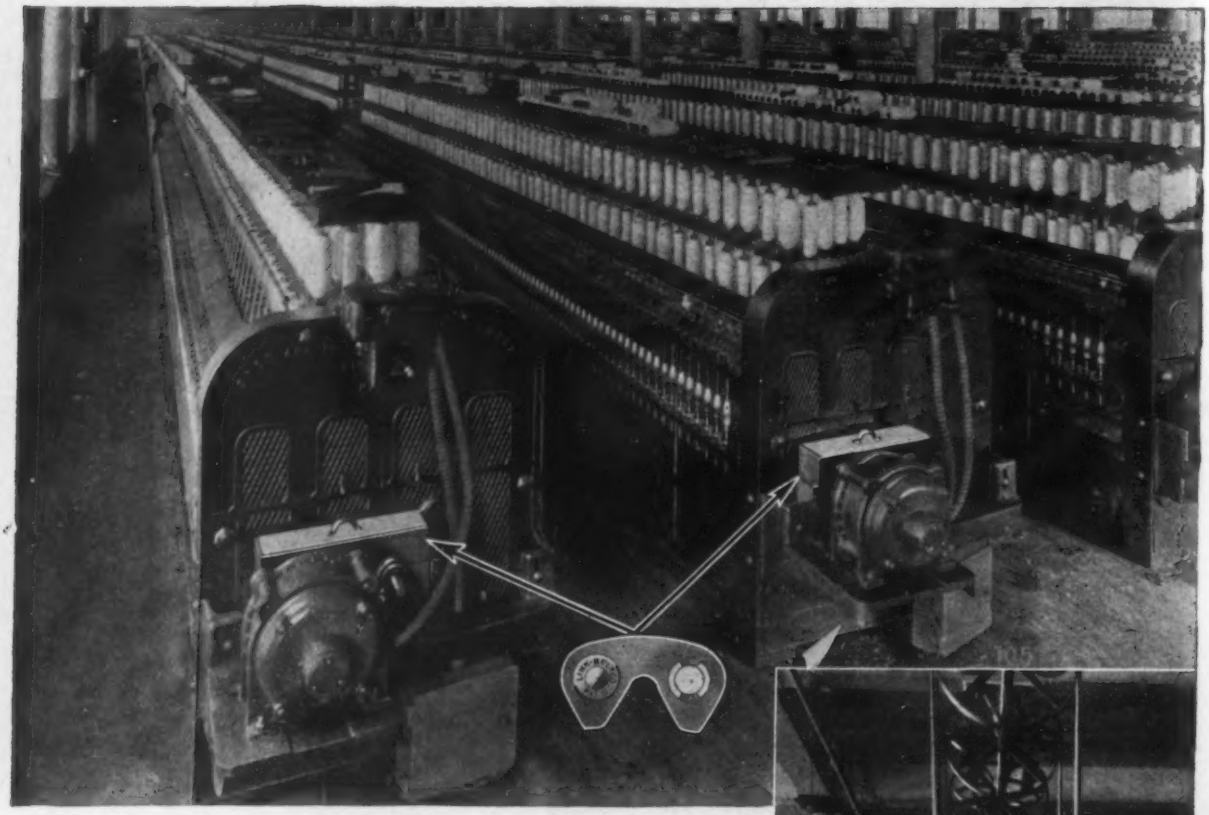
The beadless, turned-in-a-lathe rim makes the Keystone the best all-purpose pulley on the market. Uniformly balanced, it will successfully maintain its "rim truth" under high speeds and sudden strains.

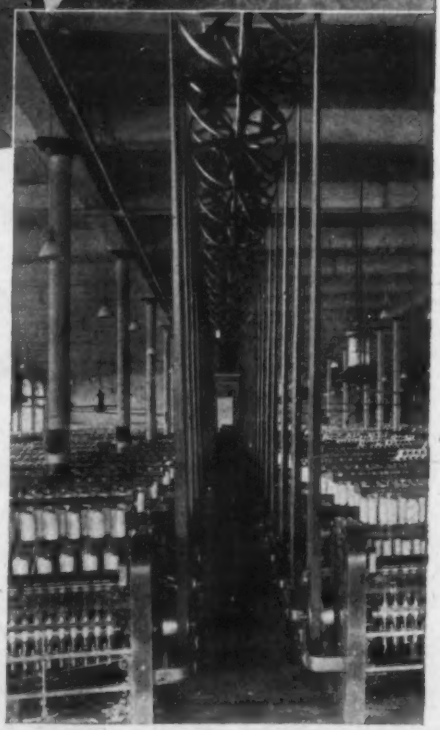
The grooveless, oval crown provides an ideal surface for belt contact, insuring low belt-tension, less bearing friction, and less power loss.

DODGE

Dodge Sales & Engineering Company, distributor of the products of the Dodge Manufacturing Company and the Dodge Steel Pulley Corporation. General Offices: Mishawaka, Ind. Works: Mishawaka, Ind., and Oneida, N. Y.
Canadian Plant: Dodge Mfg. Co. of Canada Ltd., Toronto and Montreal

Philadelphia Cincinnati New York Chicago St. Louis Boston Atlanta Pittsburgh Minneapolis Dallas Providence Seattle Newark





Flat Belts or Silent Chain

Which Do YOU Use?

THE flat belt drive, an ancient offender against efficiency, is being rapidly superseded in Textile Mills by Link-Belt Silent Chain Drives.

Here is shown a fair comparison of the two methods of transmitting power on the same job: Above, Link-Belt Silent Chain; at the lower right, ordinary flat belt drives.

Link-Belt Silent Chain is "Flexible as a Belt, Positive as a Gear, More Efficient Than Either". Our Silent Chain Drives are protected by dustproof and oil-tight casings. They are unaffected by atmospheric conditions.

You know all about flat belt drives. Compare the performance of belt drives with the 98.2% efficiency of Link-Belt Silent Chain Drives. Compare the menace to workers of the belt drive with the safety of the Silent Chain Drive. Compare the details of the two scenes pictured.

Now choose your drive!

Write for Book No. 425 on Link-Belt Silent Chain Drives for Textile Mills.

LINK-BELT COMPANY 487

PHILADELPHIA CHICAGO INDIANAPOLIS

BOSTON 9 - - - - - - - 19 Federal Street

CHARLOTTE, N. C. - - J. S. Cothran, Commercial Bank Bldg.

LINK-BELT
SILENT CHAIN DRIVES

Graton & Knight
Standardized Series
Leather Belting
Tanned by us for belting use

You Can't See a Belt Leak

Many of us, in our wasteful days of inexperience, made important measurements with the naked eye and "the feel of the thing." Unnecessary guesswork isn't considered good shop practice any more.

You lose money if your power transmission is one of those intangible qualities that is *approximately* right. Efficiency of power transmission should be constant, not variable.

Graton & Knight belting experts know how to save you every dollar you may be losing in power transmission leakage.

They have applied exact engineering knowledge to belting problems. They are constantly asked to specify the grades and sizes of belting for every drive in many of the best-belted plants.

Two forms of standardization, manufacture and application, make Graton & Knight Expert Belting Service a science.

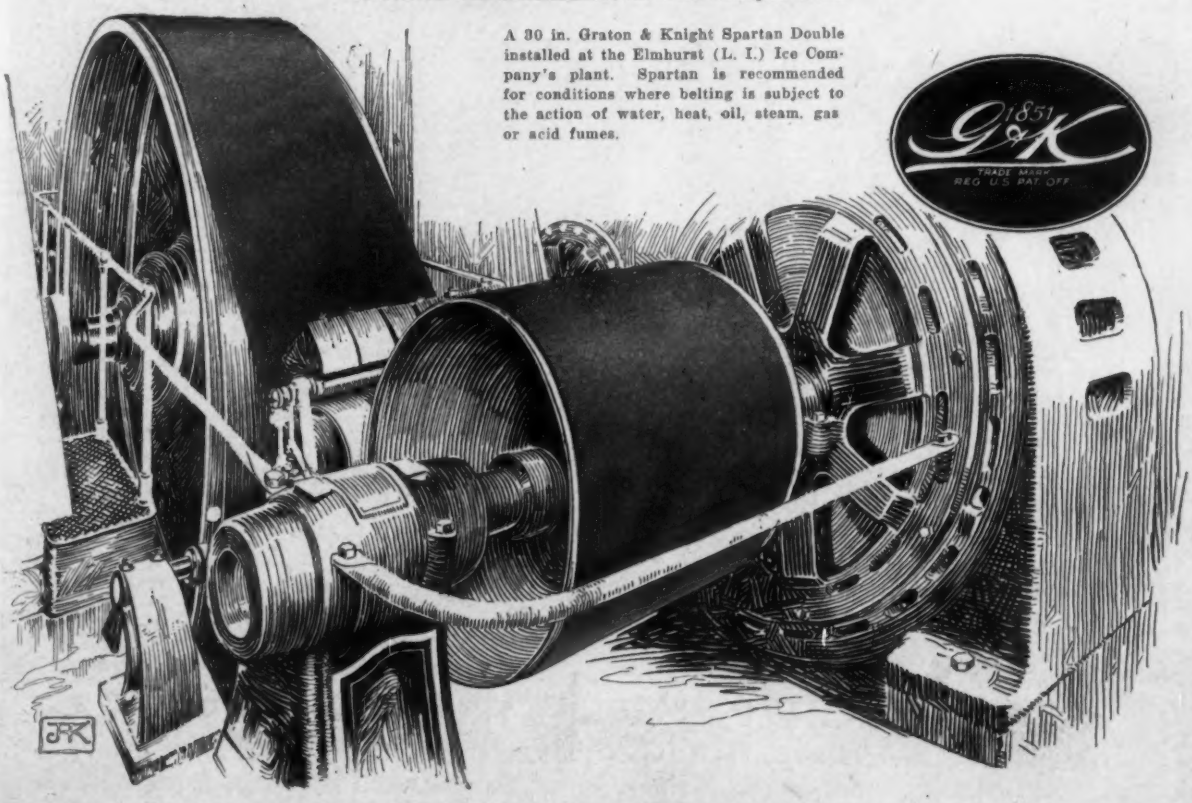
The Graton & Knight Standardized Series of Leather Belting is made up of many brands and sizes of belting, tanned and manufactured under rigid inspection and built to standard specifications. This series contains the one best belt for every class of drive. Once our belting experts know your transmission problem, it is an engineering matter to specify the proper belting.

Write for our book, "Standardized Leather Belting"

THE GRATON & KNIGHT MFG. COMPANY, Worcester, Mass., U. S. A.

Oak Leather Tanners, Makers of Leather Belting and Leather Products

Branches and Distributors in All Principal Cities



A 30 in. Graton & Knight Spartan Double installed at the Elmhurst (L. I.) Ice Company's plant. Spartan is recommended for conditions where belting is subject to the action of water, heat, oil, steam, gas or acid fumes.

"Pioneer"
STEEL HANGERS
Have Taken
The Hard
Work Out
of Shaft
Hanging
There was a time when hanging shafting was a back-breaking job.
Now it is different—because "Pioneer" Steel Hangers weigh about one-third as much as the old-style cast iron.
The cost of the mill-wrighting is also very materially reduced and the "Pioneer" does not break—Never.
Its price is no higher.
Ask for a copy of our new booklet "Transmission Data". Contains some plain truths worth reading.
STANDARD PRESSED STEEL CO.
PHILADELPHIA, U. S. A.

Will You Try This?

It has shown the way to big savings—to leading textile mills throughout the country.

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES PATENT OFFICE

SPECIAL TEXTILE LUBRICANTS

With the present high cost of labor and materials you owe it to your mill to cut down waste and spoilage wherever possible.

This free testing sample will quickly demonstrate to you that NON-FLUID OIL will reduce power waste by cutting down excess friction—will save spoilage of goods by clinging to bearings—it won't drip or spatter and waste out like oil.

This testing sample will also prove to you how easily and economically NON-FLUID OIL is applied and how much longer it lasts than either oil or grease—saving lubricant and labor spent in oiling.

Don't waste—Write today for a testing sample—Mention machine and bearing you wish to make your trial on

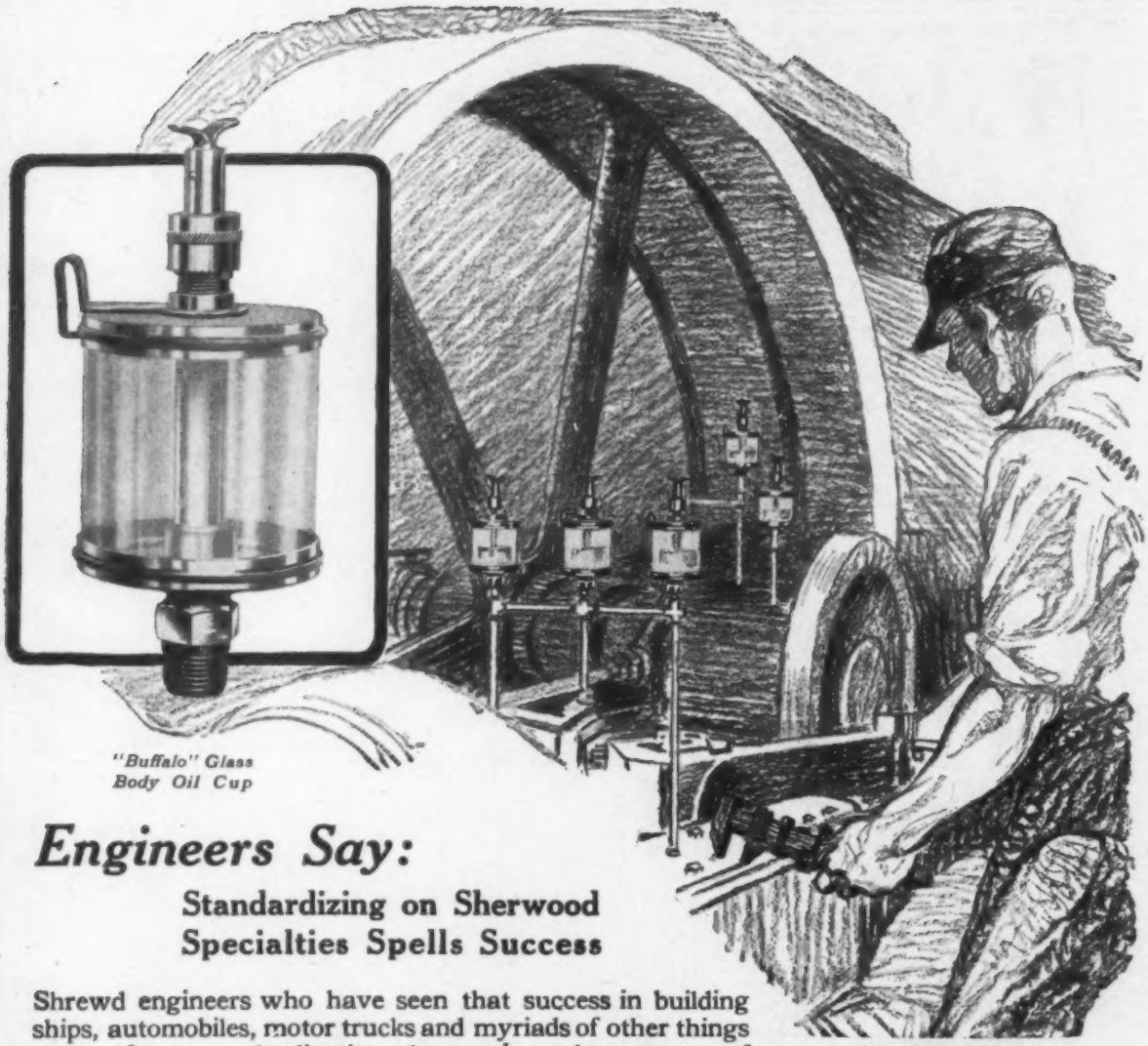
Ample Stocks at Our Branches

ATLANTA, GA. NEW ORLEANS, LA. CHARLOTTE, N. C.

NEW YORK AND NEW JERSEY LUBRICANT COMPANY

401 Broadway, New York

"Buffalo" Glass Body Oil Cup



Engineers Say:

Standardizing on Sherwood Specialties Spells Success

Shrewd engineers who have seen that success in building ships, automobiles, motor trucks and myriads of other things comes from standardization—know the advantages of standardization in their engine rooms.

These engineers standardize on the "Sherwood" Steam Specialties. They know that any line with twenty-five years of successful manufacturing experience back of it must possess merit.

Hence, these engineers are ardent users and boosters of the Hart Force Feed Oil Pump, "Buffalo" Glass Body Cylinder Oil Pump, Eagle Injector and the "Buffalo" Automatic Injector—all members of the meritorious "Sherwood" family.

As alert engineers, these men have found out, just as you will, that standardization means a big saving of time and money, and makes for success in any engine room.

Surely, if "Sherwood" Steam Specialties have been used successfully by these engineers for over twenty-five years, you have enough courage to try them out and let standardizing on them make your engine room a success.

Have you received a copy of the Sherwood Book? It is well worth reading.

—Write your name and address on the margin of this page, forward it on to us, and we will send you the Sherwood Book by return mail.

SHERWOOD MANUFACTURING COMPANY

Brass Founders and Finishers

Buffalo, N. Y.

SHERWOOD

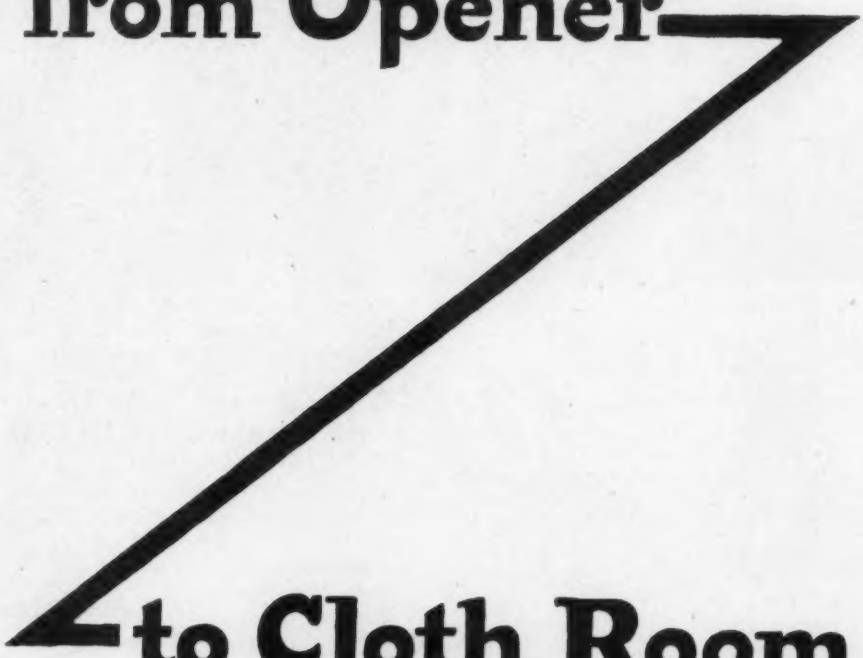
ENGINEERING-SPECIALTIES

there is a Texaco Lubricant

for every mechanical appliance

in the mill-

from Opener



to Cloth Room

—as well as in the Power Plant.

Consultation** with Texaco Lubrication Engineers Regarding any or all of your Lubricating Requirements is **Invited.

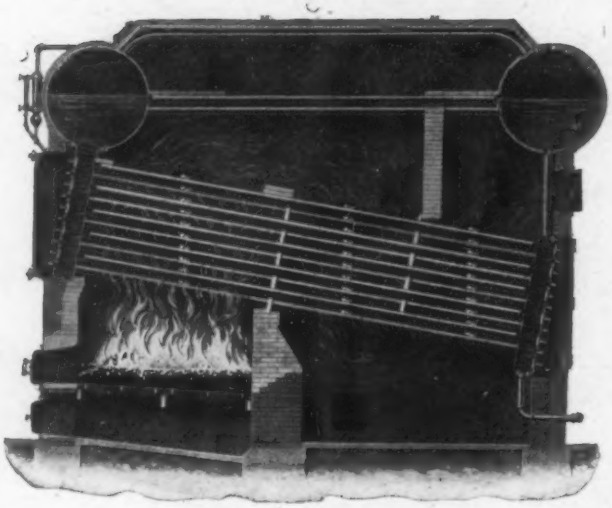
The Texas Company

Dept. O, 17 Battery Place, New York City

New York Chicago Houston

Offices in Principal Cities.

A Boiler That Saves Your Coal Pile



HERE'S a perfect water-tube boiler—a boiler that will generate more steam with less fuel—and do it steadily without shutdowns for repairs.

Rapid, unrestricted circulation is absolutely necessary to the efficiency of any boiler, and while this feature is claimed for by many boiler manufacturers, the design of this boiler is such that it is positive at **all** times.

Large overload capacity, dry steam generated, and the remarkable flexibility in meeting fluctuating demand, particularly adapts this boiler to severe conditions in the textile mill or any industrial plant.

Greater economy is assured because of the positive circulation, and because of the vertical baffling which assures better heat absorption and easy cleaning.

Less Scaling because of the feed water purification feature.

Patented throat connection gives a very large passage from the header into the drum without weakening the shell of the latter.

Fewer repairs because all expansion and contraction is taken care of—all tube surfaces run in one direction and all plate surfaces in another.

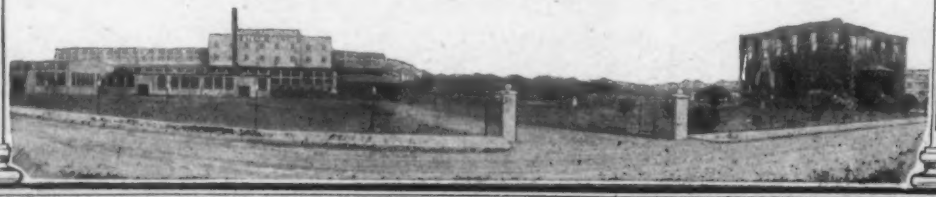
In short, this is the perfect boiler—an investment instead of an expense.

Write today for full information.

INTERNATIONAL ENGINEERING WORKS, Inc.
FRAMINGHAM, MASS.

Southern Representative: Isaac Hardeman, Charlotte, N. C.

Boston New York Philadelphia Charlotte San Francisco



Aladdin

Eagle Lock Company Says, "Use Our Name In Your Industrial Housing Advertising"

By using various Aladdin houses and placing them about on different streets the Eagle Lock Company avoided any appearance of "rows" or "tenement houses" and succeeded in their effort to maintain the individual home idea.

The Aladdin catalog offers a great variety of houses suitable for use in the Industrial Housing proposition, making it easy to obtain the results desired by the Eagle Lock Co.

Or if your housing problem calls for a complete village Aladdin will draft complete plans, including streets, parks, school grounds, and lay out the lighting and water systems and sewage. ***No matter what Industrial Housing means to your firm, Aladdin is equipped and ready to handle it in all its entirety to your complete satisfaction.***

When you are ready to consider your housing problem bear these facts in mind.

Aladdin——

—expedites your building project—
—houses your men well and quickly—
—saves 18% of the cost of lumber—
—saves 30% of the labor cost—
—reduces the skilled labor required—
—guarantees complete shipment of material—
—guarantees the quality—
—carries material for 1000 houses in stock—
—ships from the nearest timber region—

—quotes definite prices on any order from one house up to a city of 3000, including churches, schools, offices, water and sewage systems, electric plants, street and house lights, heating plants, street parks, trees, lawns, etc., complete.

Write, wire or phone for Aladdin catalog No. 1538.

The Aladdin Co.

OFFICES AND MILLS AT
Bay City, Michigan
Wilmington, North Carolina
Hattiesburg, Mississippi
Portland, Oregon
Toronto, Ontario

Industrial Housing

Cozy-Attractive-Economical Homes

for Industrial Villages

QUICKBILT BUNGALOWS

Manufactured in large quantities, after patented methods. Especially adapted to industrial villages. Used by many of the largest corporations.

Thoroughly substantial. Costs less than half the ordinary house. Quickly erected. Absolutely guaranteed.

Saves architect's, contractor's, lumber dealer's and jobber's superfluous profits. Cost of manufacture and erection cut in half.

It Will Pay you to Investigate.

Address

QUICKBILT Bungalow Department F118

A. C. Tuxbury Lumber Co., Charleston, S. C.

Built by ABERTHAW

MANY items fill the measure of a builder's competence. First of these is his ability to estimate.

Not the *low* estimator but the *accurate* estimator is the one to be trusted with a project.

Ask competing firms for the record of estimates and final costs on their last dozen undertakings.

ABERTHAW
CONSTRUCTION COMPANY
ATLANTA PETERS BLDG

The Favorite Flooring for Modern Textile Mills,
(—and Some of the Good Reasons.)

TUPELO

TUPELO

A NATURAL WOOD

which grows in the South—*not* a "composition." Tupelo possesses a peculiarly valuable characteristic known as an "involved grain." Its fibers are so knitted or entwined as to make it extremely tough, very hard to split and non-slivering (quite a point). At the same time Tupelo is soft and easily worked, yet holds nails extremely well.

THEREFORE

THE NATURAL WOOD

for TEXTILE MILL and WAREHOUSE FLOORS—not only because of its structure, but by reason of its relative economy. Tupelo gets smoother, solider and denser under heavy trucking and long-continued wear, and it is *quickly available* in any quantity. Tupelo Floors have advantages of special interest to any manufacturer requiring a hard-wearing, easy-working wood.

Write us for full information

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

805 Hibernia Bank Building, NEW ORLEANS, LA., or 805 Heard National Bank Building, JACKSONVILLE, FLA.

ATLANTA—

Information Headquarters for Lupton Steel Sash Products

WIDER buildings—more floors—more intensive use of space: these are the tendencies of today in mill and factory design. And with them comes the need of steel sash, with its better daylighting and ventilation, in order to realize the full possibilities of modern buildings.

But the right ways of using steel sash are less familiar. There are several types, each with its own special advantages, and each with its own methods of erection, attachment and operation.

To help you to get full value from the daylighting and ventilating possibilities of Lupton Steel Sash Products, we have opened a direct sales and engineering office in Atlanta, in charge of two graduates of the Lupton Engineering Department.

These young men are not just salesmen. They are service men — trained engineers — who know every angle of Lupton Sash Products and how to use them. They can analyze your conditions, discuss your new plant over the drafting-board and tell you how to select and install suitable steel sash for your needs and what it will cost.

Just drop a line to David Lupton's Sons Company, 1024-5 Candler Bldg., Atlanta, and they will be glad to write or call in person.

Lupton Pivoted Factory Sash—*Cat. 10-LSS*

Lupton Counterbalanced Sash—*Cat. LCB*

Lupton Steel Partitions and Doors—*Cat. 10-LSP*

Lupton Rolled Steel Skylight—*Cat. 10-Misc.*

Pond Continuous Sash, for Pond Truss roofs, monitors, sawtooths, and side walls—*Cat. 10-PCS*

Pond Operating Device for long lines of sash—*Cat. 10-PCS*

"Today —— the Sash makes the Factory"

DAVID LUPTON'S SON'S COMPANY

Established 1871

Amber St. and Allegheny Ave. Philadelphia
1024-5 Candler Building Atlanta

Makers of Steel Sash Products for Industrial Buildings and Offices

Specialists in daylighting and ventilating equipment for maximum production

Canadian Manufacturers: The A. B. Ormsby Co., Ltd., Toronto

Lupton

INVESTMENT VALUE

John W. Ferguson Co.

THE BUILDER'S PART

More than a knowledge of building materials and methods, of brick and concrete, of steel and timber is required of the modern builder.

To him a building must be something more than four walls and a roof with windows and doors and equipment.

The real builder sees every structure as a great machine for the turning out of shirts or automobiles, of steel or candy, every part of which is co-ordinated with every other part.

And he must construct this machine with the minimum of materials and men without the loss of time or money.

The John W. Ferguson Company know industrial building; they know the requirements of manufacturers, whether their product be silk or tin cans, powder or power. For many years Ferguson has been erecting buildings for the leaders of industry—buildings that have fulfilled every requirement—buildings that caused 70% of Ferguson clients to re-order.

65-104

Paterson, N. J. New York, N. Y.

WHO— CROSSES YOUR PROPERTY LINE? —

Cyclone Fence

Establishes Individual Identification

FRIEND OR FOE?

Cyclone Fence bars trouble makers — admits only those you know and trust. Stops promiscuous access to your premises. Thefts are stopped, vandalism prevented, and a system established that increases production and profits.

Who c r o s s e s your property line? Is your plant Cyclone Fenced? Our experience is at your service.

Fence, Wire or Iron, Built for Any Purpose

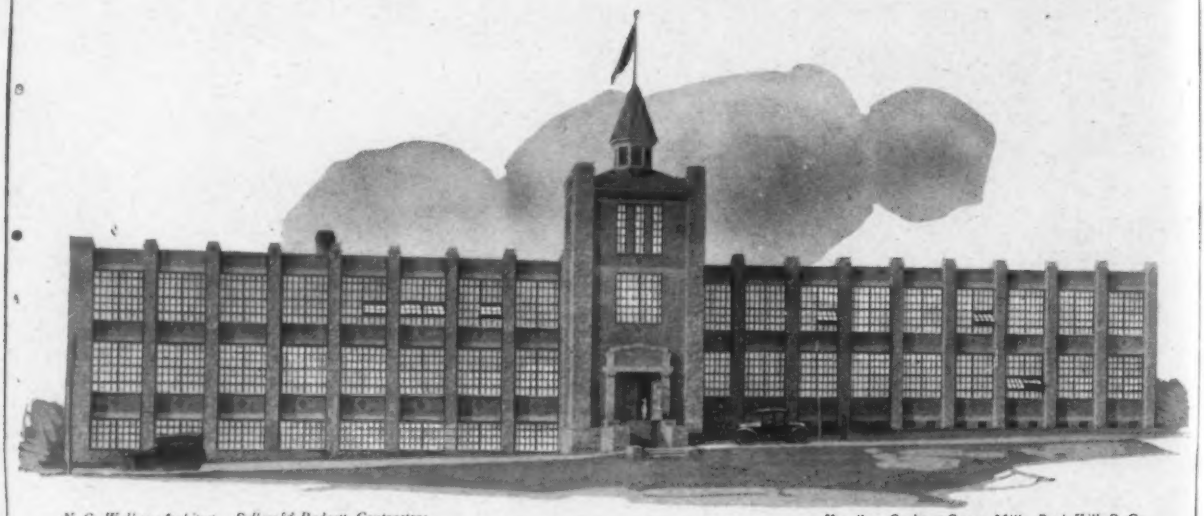
Look for the "Red Tag"

CYCLONE FENCE COMPANY

Waukegan, Illinois

Branch Factories: Cleveland, Ohio Fort Worth, Tex.

Branch Offices: Chicago Indianapolis Detroit Rochester Philadelphia New York Baltimore St. Louis Oakland Portland San Francisco



N. G. Walker, Architect. Sellers & Padgett, Contractors

Hamilton Carhartt Cotton Mills, Rock Hill, S. C.

WindoWalls—and Blue Denim

THE Hamilton Carhartt Mill No. 2, at Carhartt, S. C., is run entirely on blue denims, used in the manufacture of the well known Carhartt Overall.

Here is a product that requires ideal lighting conditions because the warp threads are dark blue, and the weft threads pure white. The dark blue thread is exceedingly hard to see under ordinary conditions, but, in the Carhartt Mill, Fenestra Steel WindoWalls admit a flood of daylight to every loom and thread. Whether the thread be dark blue or pure white, it can be located easily, and the time consumed in mending broken threads is considerably lessened.

Mr. B. L. Ivey, Resident Manager of the Carhartt Mill, recently wrote us as follows:

"We are very much pleased with Fenestra, and in addition to this mill being equipped throughout with Fenestra Steel Sash, we are equipping our new store building with it. We consider that the use of Fenestra affords us considerable fire protection, also."

Detroit Steel Products Company

3914 East Grand Boulevard, Detroit, Michigan

Fenestra

STEEL WINDOWALLS

Your New Mill

Let it be Designed and Built by Men Who KNOW

Textile executives are realizing that expert engineering service is an absolute necessity in economical construction and well balanced textile layouts.

With a large organization and a staff of trained engineers, Robert and Company are solving various textile and industrial problems for their clients all over the country.

ENGINEERS ROBERT & COMPANY ARCHITECTS

CANDLER BLDG. ATLANTA, GA.

When He Started to Work That Morning

he was happy and contented. His little home glistened with a fresh coat of paint—the grass and trees were green—the sun shone brightly. He threw out his chest and whistled a gay tune, as he walked along with his free and easy stride.

But—

as he neared the dingy factory where he worked his feelings began to change—the whistle died on his lips—the shadow of discontent crept over him. When he reached his work room and looked at the black machinery and the dirty walls and ceilings his happy mood was completely changed. He started his work listlessly and without interest—you can imagine the quantity and quality of his output.

Such a scene takes place every day in thousands of factories. Every industrial plant cannot be situated among trees and flower beds, but every one can be kept well painted both inside and out. Every barrel of paint used means more contented workers. One of our missions in life is to brighten up as many factory buildings as possible with

ELASTIKOTE

which we have manufactured for years for use on buildings in manufacturing districts. Elastikote is made on a different formula—it is not affected by smoke, fumes and gases—it is the ideal paint for factory buildings.

A sample sheet painted with Elastikote will be sent to you on request, so that you can test its elasticity and resistance to smoke, fumes and gases. Also one of our representatives will be glad to call with prices and complete information.

THE TROPICAL PAINT & OIL CO.

CLEVELAND, OHIO

Specialists in the Manufacture of Protective and Decorative Coatings for Industrial Plants.

Preliminary sketch of the new Marvin Carr Building for the Durham Hosiery Mill, Durham, S. C.

IN the course of planning and directing textile plant, factory design and construction, industrial housing, hydro-electric and other engineering developments for some of our clients for more than a quarter of a century, we have collected much information of value to the factory owner who recognizes the desirability of keeping a plant modern and efficiently productive at full or partial capacity.

To such a concern or individual we can give substantial assistance in determining the feasibility of projected improvements, the justifiable investment and the proper method of procedure.

"*Picks to the Minute*" is a booklet we have prepared for those interested in the textile field. "*Factories for the Future*" is more general, while "*Contentment Under Roof*" discusses and describes some of the benefits of industrial housing operations, and "*Rivers in Harness*" will particularly interest operators whose plants are within a few miles of unused water power.

Indicate the booklets that you would like to have and they shall be mailed promptly.

J. E. Sirrine and Company

Engineers

Greenville
South Carolina

331 Madison Ave.,
New York City

SERVICE

See also our advertisements which will appear in frequent issues of the Literary Digest, Commerce and Finance, and other publications beginning with the July 3d issue.

The Watchword of Industry —PAINT

Mill executives are realizing more than ever the importance of systematic up-keep of buildings and mill equipment. The liberal use of paints, their careful selection as to quality and purpose are prime factors in the economical up-keep of your mill.

Varnishes—Stains—Enamels

are the results of more than fifty years' experience and research to meet the requirements of cotton mills.

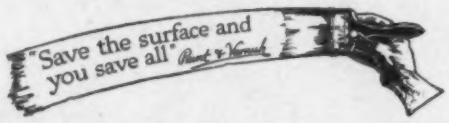
Each ***Pee Gee*** Product is made for a specific purpose and will give you longer service at lowest possible cost.

A protecting coat of ***Pee Gee*** Mill Paint or Varnish will insure your buildings and machinery against decay and keep down the cost of up-keep.

Write us today regarding your Paint needs.

Experimental Laboratories at Your Service

We urge you to take advantage of the expert help we offer you. Suggestions, advice and even the services of an experienced man to supervise the job—are yours for the asking—no obligation whatsoever, just a demonstration of ***Pee Gee*** upkeep idea of thoroughness and efficiency.



Peaslee-Gaulbert Company, Inc.

PAINT GRINDERS—VARNISH MAKERS

Louisville, Established 1867 Kentucky

CONDULETS

TYPE FS
Condulet with gas, vapor and dust proof cover—for push button switches.

TYPE ZYC
Safety-First motor starting switch. Door cannot be opened while switch is on.

TYPE GS
Condulet with gas, vapor and dust proof cover, for rotary snap switches.

Iron Clad Safety Switches

PROTECTION for labor and equipment constitutes a vital part in the economic program of most of our industries.

The ever increasing use of electricity necessitates the adoption of the most efficient electrical switching devices.

Condulet switches here shown fulfill requirements by enclosing all live parts in substantial cast-iron housings. Cast-iron is the best metal for the purpose because it withstands the corrosive action of dampness and acid fumes.

Send for Condulet Catalog.

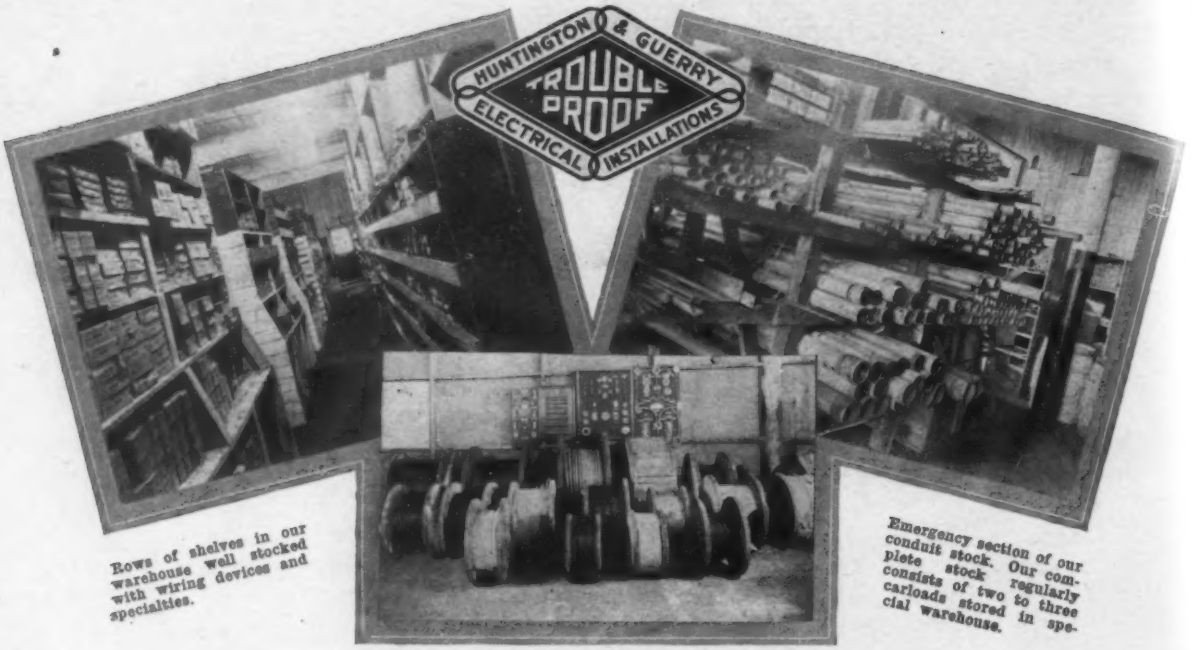
CROUSE-HINDS COMPANY
SYRACUSE, N. Y.
BOSTON NEW YORK CHICAGO
Condulets Panelboards
Knife Switches Floodlights
Guy Anchors
1572

TYPE MKC
Iron clad safety-first line switch. The door is locked while switch is "on."

TYPE MFC
Safety-First motor starting switch. This switch cannot be operated from "off" to "run" position without first going to "start" position.

Condulet the Job

CROUSE-HINDS



Rows of shelves in our warehouse well stocked with wiring devices and specialties.

Emergency section of our conduit stock. Our complete stock regularly consists of two to three carloads stored in special warehouse.

Portion of our stock of wires and cables to show variety of size and types carried. Our complete stock regularly consists of 12 to 15 tons.

AT YOUR SERVICE

A regular stock of materials large enough to wire one or two cotton mills of average size.

Two to Three Carloads of Conduit

Twelve to Fifteen Tons of Wire and Cable

All Kinds of Wiring Devices and Accessories to Match

We maintain this stock exclusively to give our customers prompt service on wiring installations—not for general sale.

You know what this means in these days of slow deliveries and curtailed production.

YOURS FOR SERVICE

HUNTINGTON & GUERRY, Inc.

GREENVILLE - SOUTH CAROLINA

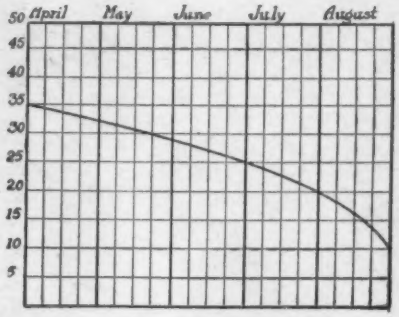
"Speaking of curves – Here's another Fade-away."

"What's that got to do with our product?"

"Well, since we installed those large Westinghouse Mazda C Lamps, I've been making an investigation of the amount of spoilage that has occurred, and this chart shows the downward curve which I have run since the Westinghouse Engineer laid out our lighting system."

"Have you any idea in Dollars and Cents as to the amount we have saved in spoilage losses?"

"I've been making up a few figures, Chief, and I'll say this right now—that the spoilage is about 25% less, which more than pays for the cost of the increased lighting intensities and the entire new installation as well."



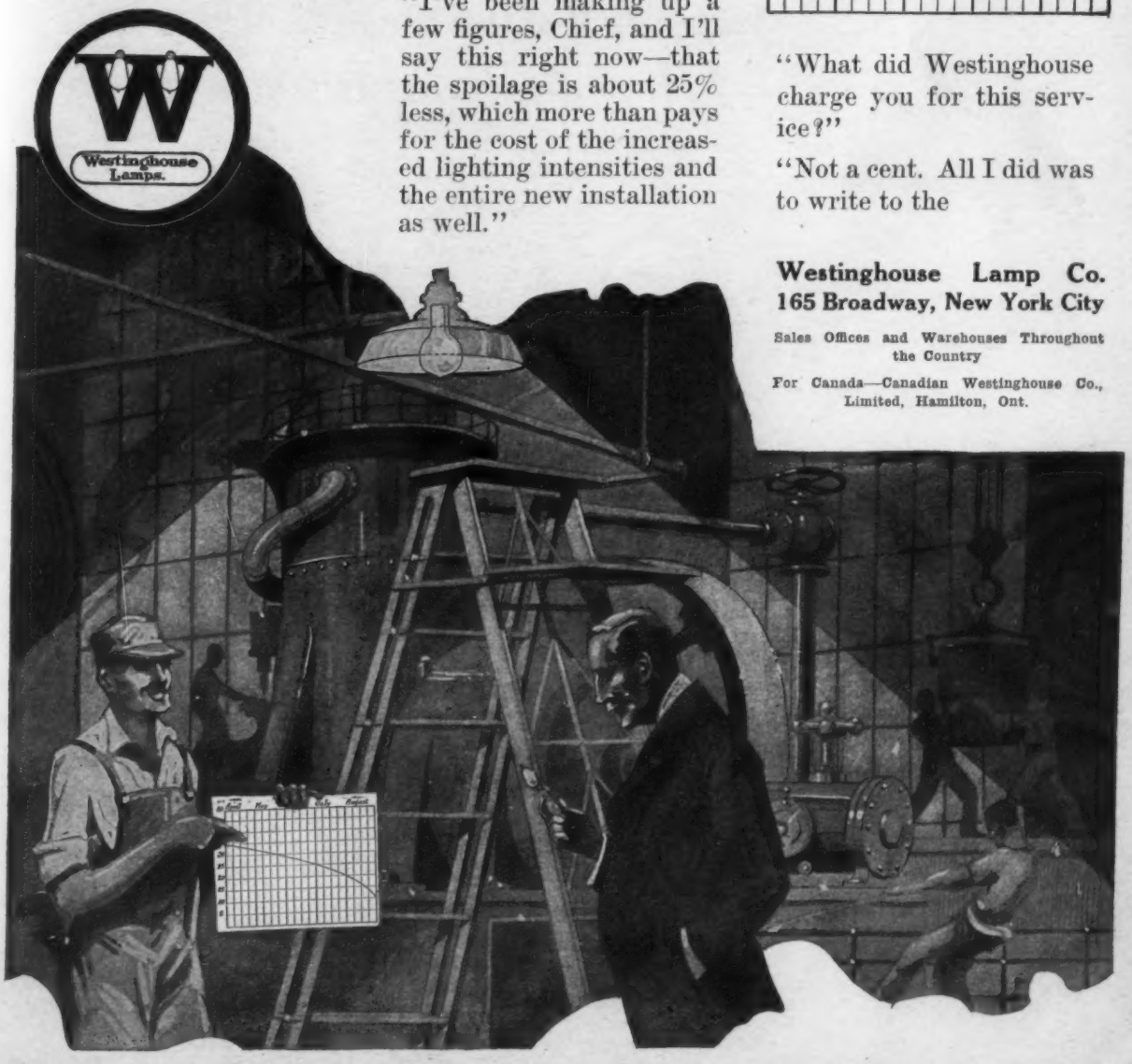
"What did Westinghouse charge you for this service?"

"Not a cent. All I did was to write to the

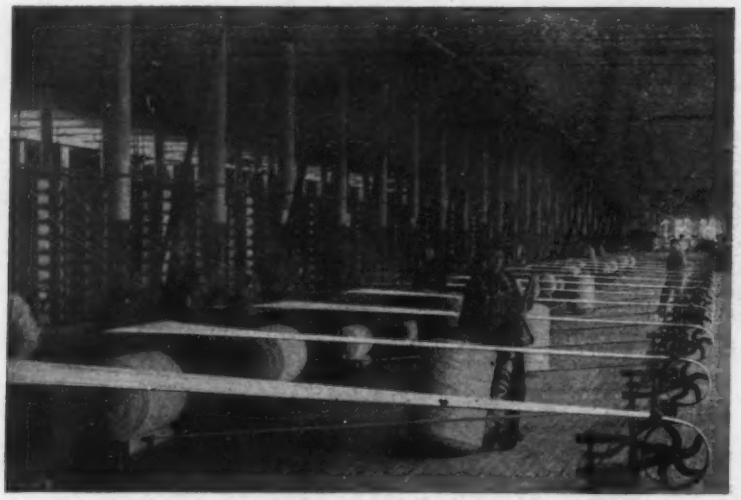
Westinghouse Lamp Co.
165 Broadway, New York City

Sales Offices and Warehouses Throughout the Country

For Canada—Canadian Westinghouse Co., Limited, Hamilton, Ont.



Proper Light Intensity Without Glare



BENJAMIN SEAMLESS DEEP BOWL REFLECTOR SOCKET

—*for Industrial Illumination*

To secure the proper intensity of illumination for certain industrial conditions, it is imperative that special types of reflectors be used.

Deep Bowl Reflectors furnish a maximum re-direction of light. Consequently, they are the reflectors giving the greatest service for the local lighting of benches and machines, or wherever work is done in detail. They are also the most serviceable reflectors for general illumination under high mountings, or where a flat working plane requires illumination of greater than ordinary intensity.

Benjamin Deep Bowl Reflector Sockets are especially designed for known industrial requirements. They are easy to install and are constructed to give long service under the hardest conditions.

The Benjamin Deep Bowl Reflector Socket is of one piece—seamless—porcelain enamel fused upon steel. The enamel is not affected by vapors, heat or moisture and the whole unit is as nearly corrosion proof as lighting apparatus can be made. By virtue of the Benjamin X-Type Fitting and Easy-to-Wire Socket, the lamp and all electrical parts are supported directly by the stem, thus being relieved of all strains which may be put on the reflector.

Benjamin Illumination Engineers will gladly confer with your own architect or contractor on any illumination question you may have.

Address all inquiries to the Advertising Department, 806 W. Washington Blvd., Chicago

BENJAMIN ELECTRIC MFG. CO.

Factories: Chicago and Desplaines, Ill.

Sales and Distribution Offices:

247 W. 17th St., New York 806 W. Washington Blvd., Chicago 580-582 Howard St., San Francisco
Benjamin Electric Mfg. Co. of Canada, Ltd., Toronto, Canada
The Benjamin Electric, Limited, London, England

BENJAMIN
PRODUCTS
The following are divisions of Benjamin products on which we will be glad to send information:
Industrial Lighting Division
Electrical Division (including Benjamin Two-Way Plug)
Pressed Steel Products Division
Enameled Products Division
Starrett Panel Board Division

BENJAMIN

Makers of Things More Useful

DOW

MIDLAND BLUE R

For sale by

ANILINE DYES and CHEMICALS, Inc.

Cedar and Washington Streets
New York City

Branches:

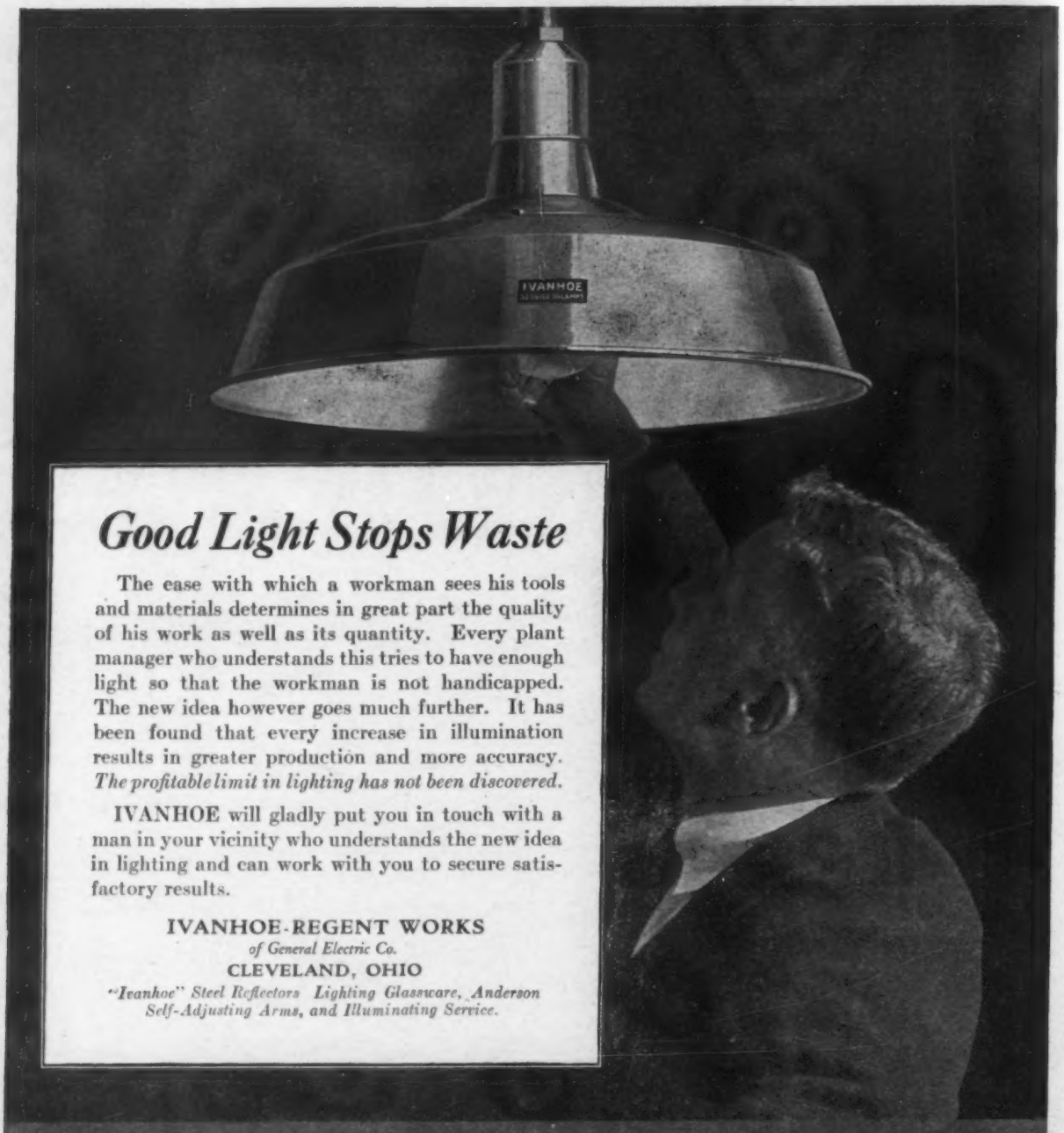
Boston
Philadelphia
Chicago
Columbus, Ga.

A VAT DYE which is superior to Indigo in many respects, producing a brighter shade, fast to light, bleaching and washing.

This color is especially recommended for dyeing Denims and fabrics which are subject to severe use.

Our selling agents will be pleased to furnish full details on request.

The Dow Chemical Company
MIDLAND-MICHIGAN Σ NEW YORK CITY
U-S-A



Good Light Stops Waste

The ease with which a workman sees his tools and materials determines in great part the quality of his work as well as its quantity. Every plant manager who understands this tries to have enough light so that the workman is not handicapped. The new idea however goes much further. It has been found that every increase in illumination results in greater production and more accuracy. *The profitable limit in lighting has not been discovered.*

IVANHOE will gladly put you in touch with a man in your vicinity who understands the new idea in lighting and can work with you to secure satisfactory results.

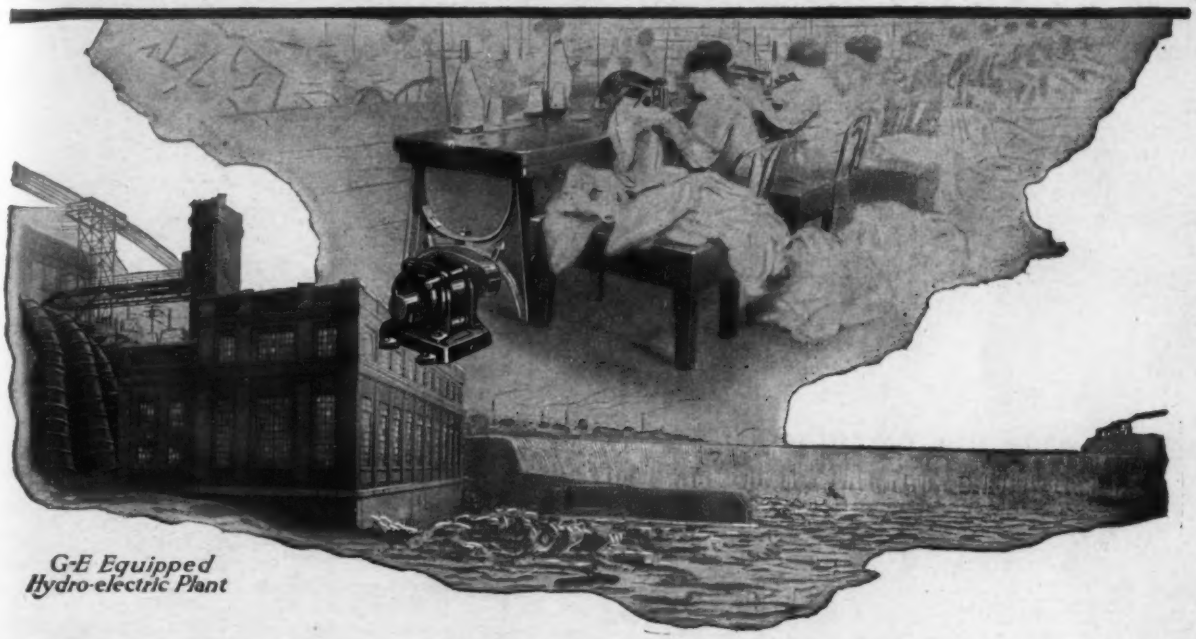
IVANHOE-REGENT WORKS
of General Electric Co.
CLEVELAND, OHIO
"Ivanhoe" Steel Reflectors Lighting Glassware, Anderson Self-Adjusting Arms, and Illuminating Service.

"Service to Lamps"

IVANHOE

SHADES-REFLECTORS

In many cities production can be increased, its quality improved, and new industries added by efficiently making and using the available power



G-E Equipped Hydro-electric Plant

How electricity increased and improved a textile city's production

EACH mill in a certain textile city was driven by its old water-wheel—production was low, so was quality.

In summer, low water and leaky canal beds slowed up the wheels—in winter, anchor ice did the same.

Finally, G-E textile mill specialists were called in to suggest a better way of using the water power.

A central water power plant was built to supply all mills with electric power and provide a surplus for new industries.

Electric drives at each mill applied power directly to productive machines, and losses due to mechanical drives were largely eliminated.

Machinery was enabled to operate at a constant maximum productive speed.

Its output was increased 35% and a very much better product resulted.

Any community's efficiency may be increased manifold by the proper utilization of Nature's resources and the application of electricity in homes, industries or on farms.

Look for this mark of leadership in electrical development and manufacture

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

MILL POWER DEPARTMENT, BOSTON, MASS.

G-E motors

From the Mightiest to the Tiniest

GENERAL ELECTRIC COMPANY

The Quality Marks of Soft Water Manufacturing

are known and looked for by every experienced buyer of textile fabrics.

No other known process will give a fabric such uniformity and perfect penetration of color; such accurate matching of shades; such freedom from spots and uneven dyeing; and that wonderfully soft, dry feel so characteristic of fabrics processed in the zerowater, delivered only by Permutit Softeners.

Such are the distinctive marks of highest quality, and they are the inevitable and dependable results of soft water manufacturing that are recognized and sought after by all discriminating buyers.

It will pay you to investigate the economy and advantages of supplying your mill with soft water. We will make a thorough analysis without cost or obligation to you—Write us today.

The Permutit Company
440 Fourth Ave. New York
Offices in all principal cities

85

Red Vulcanized Fibre Re-Enforced Shuttles.

A Shambow Shuttle, thus reenforced, will outwear the best plain wooden shuttle two to one and increase loom production and maintain, if not actually improve, quality. They will prevent an end an hour per loom from going down. Figure this out in additional loom hours added to your present producing capacity. More information cheerfully given, if you'll write.

Shambow Shuttle Co.
Woonsocket, Rhode Island

FELTON

FELCO

In every community there is one superior quality brand. Textile mill men who have to do with mill brushes have long recognized the superior quality of FELTON Mill Brushes.

The quality of FELTON Brushes is still as high as ever regardless of the fact that raw materials are higher in price. They are made from the best materials obtainable and by the most expert workmen.

FELTON Brushes are proving their quality and economy in the mills throughout the South—they are standing the use and abuse of long and severe service.

There's a FELTON Brush for every use in the mill at the lowest price consistent with the high standard of quality.

Prompt deliveries and repair work are other services which make FELTON the logical place to go for mill brushes.

S. A. Felton & Son Co.
Manchester, N. H.
D. D. Felton Brush Co.
Atlanta, Ga.

SAFCO

BRUSHES

COTTON

Published Monthly by

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L. L. ARNOLD, Editor. R. W. PHILIP, Associate Editor.

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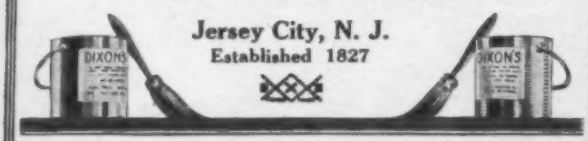

Cashing in on Buying Habits

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With the Publishers—

Housing and Productive Labor

KENNETH R. CRUMPTON.

Labor is the outstanding problem in the industrial world today. A sufficient supply of contented workers is the determining factor in successful production. Upon the solution of this question rests the future of America as a great industrial power.

In the human element in labor lies its weakness and its strength. Realizing this, thoughtful employers have built their factories and arranged their workrooms so that each employee might have daylight, fresh air and ideal working conditions. But this is only half the answer. More than half of an employee's time is spent away from the mill. What are his living conditions at home? What recreational facilities are provided for him and his family? On the answer to these questions hinges the ultimate success of the plant. He who loves his home loves his work. Cleanliness breeds pride, and pride is a large factor in good workmanship.

Successful villages are first carefully planned. Hit and miss construction never pleases the eye. We have, therefore, secured an article on "Mill Village Planning" from a high authority in this field of endeavor and are publishing it in another section of this issue of COTTON. The author, Kenneth R. Crumpton, is manager of George H. Schawn's well known organization of architects and town planners, with headquarters in Pittsburgh, Pa.

Mr. Crumpton was a student for two years in electrical engineering at the University of Wisconsin and graduated from the University of Pennsylvania in the Department of Architecture. He served several years apprenticeship as junior designer and engineer in architectural and engineering offices in the middle West. From 1915 to 1918 he was a practicing architect under state license in Superior, Wisconsin. In the latter part of 1918 he became affiliated with George H. Schawn's organization as head designer, becoming general manager a year later.

Among Many Other Features

The editors are presenting in this number the address of President Fitzgerald of the Riverside & Dan River Cotton Mills before the recently elected mill Congress, in which he briefly reviews the results at his mills during the past year under the Industrial Democracy plan.

Also an illustrated article describing the installation and operation of a Centralized Employment Department at the Tallassee Mills and the results they are obtaining therefrom.

Another contributor discusses under the caption "The Future of Cotton" the comparative results obtaining from the recent reaction in silk, and later in wool, and the possibilities that seem to him to stand out in the cotton situation.

A foreman's responsibility and his opportunity as was discussed by a popular foreman from a southern mill before a recent Industrial Conference held at Blue Ridge, North Carolina.

These are only a few of the good things the editors have in preparation as some new technical writers have been secured, while on general subjects an interesting line of feature articles are now in preparation by the country's foremost authorities on their special subjects.

Turn back one page and examine the Table of Contents.

AMONG COTTON'S READERS

General Lawrence D. Tyson

Commander of the 59th Brigade, 30th (Old Hickory) Division, A. E. F.
President Knoxville (Tenn.) Cotton Mills, Knoxville Spinning Co., and Tennessee Mills.
Vice-President American Cotton Manufacturers Association.

"I think COTTON is doing a great work and is one of the very best publications I receive."

L. D. Tyson

August, Nineteen-Twenty

Who's the Profiteer?

We have heard much in the last eighteen months of profiteers and profiteering. The federal department of justice has investigated and at times indicted merchants and manufacturers on phases of this charge. Labor, as a union or as individuals, has thus far escaped.

A grand jury investigating the housing shortage at Cleveland, Ohio, is quoted as saying in its report that—

"The testimony adduced indicates conclusively that it requires approximately twice as long with the same number of men to erect a house today as it did in pre-war times. Impartial tests show that it takes twice as many carpenter hours to do carpenter work on a building as it did five years ago. Bricklayers lay less than half the number of bricks; paperhangers, painters and plasterers all do less than half the work in the same time that they did five years' ago.

"Manufacturing firms which make and sell building materials prove by their records that while wages have gone up 200 per cent in some cases, labor costs have gone up 400 per cent, indicating that their employees are getting double the pay for one-half the work as compared with before the war."

If a coal dealer charged you twice as much for coal as before the war (which they do) and then delivered only 1,000 pounds for a ton, what would you call him? But would such a coal dealer be any different from a carpenter or a bricklayer who collects an hour's pay for only thirty minutes work? In the case of the coal dealer you would call him a thief, but the workman who wastes or steals half of the time you are paying for, your time if you please, is just as much of a thief as the man who steals your coal. This word "profiteer" is only a gold-plated name for a thief anyway. And the carpenters and bricklayers are no worse than any other individual tradesman who dissipates the time of his employer.

Unfortunately there are some circumstances under which it is difficult to prove the actual theft of time, but that such practices are quite common is borne out by the great number of similar reports received from widely different sources. The moral fiber of some of our people seems to have deteriorated during the reconstruction period as was the case in the years immediately following the war between the states. The war aftermath seems to have engendered a greed for gold. In spite of the fact that wages are on the highest plane on record, the industrial air is full of strife, strikes, broken agreements and disorder, and the criminal records, in some sections at least, show a decided increase in such crimes as burglary, thievery and highway robbery.

To get back to the caption "Who's the Profiteer," it might be pointed out that while there are a variety of these gentry, they may be separated into two general classes—the opportunists who believe in "getting their's while the getting is good," and the other class who believe in "getting their's" and also a part of the other fellow's portion. Where the actual line of demarcation between honesty and dishonesty falls is entirely a matter of individual ethics so long as the line falls within the law. And, understand, this law is not the law of right and justice but the statute law as written by our law-makers, who, after all, are mere human beings with individual interests like the rest of us.

So, in the end, it's a matter of morals and who shall censor our morals if we do not ourselves make an effort in that direction?

China's Industrial Development.

Quite apropos in connection with what has already been printed in COTTON regarding industrial China is the following statement by Julean Arnold, American Commercial Attache, of Peking, China, before The Silk Association of America:

"The Chinese are very desirous of meeting the new conditions which confront them. They are very receptive to this whole idea of modern industrialism. As you may know, China today is an agricultural country; probably eighty-five per cent of the people are still engaged in some form of agricultural pursuits, so that when this great industrial era upon which they are to embark strikes this country in its fullness, you can imagine what it will mean to the rest of the world in trade development. And that has come. It is in its inception. The Chinese are ready for it, and they are today embarking on that great industrial era. In this connection, the first and foremost need in China is transportation. The Chinese need railways; they need to open up their country. Six-sevenths of the Chinese population today is concentrated in one-third of her territory, so you can appreciate the fact that

China is not a country that is over-populated, as some of you have been led to believe. There is a vast territory in China, and a vast territory contiguous to China that is sparsely populated, and a territory that is rich in virgin resources awaiting the railways to open it up and to give the people an opportunity to strike out and develop the country. The Chinese will move along the line of least resistance and they will go forward and develop the land about them rather than try to move across the high seas. It is up to us to try to assist them in this development, to try to bring them the railways which they need. As you know, or some of you, China today has only 6,000 miles, or 6,500 miles of railways, as compared to our 265,000 miles, and the country is larger in area than the United States, and it has probably four times the population, so you can imagine how badly in need they are of railways. With railways will come other developments and will come other industrialism."

Several Kinds of Conservation.

The American Forestry Association in a recent bulletin made these statements:

"We are consuming lumber three times as fast as we are procuring it.

"Experts predict our saw log lumber will be gone in fifty years.

"The bulk of the original supplies of yellow pine in the South will be gone in ten years and within seven years 3,000 manufacturing plants there will go out of existence.

"White pine in the lake states is nearing exhaustion and these states are paying $6,000,000 a year in freight bills to import timber.

"New England, self-supporting in lumber twenty years ago now has to import one-third of the amount used. It has $300,000,000 invested in wood and forest industries, employing over 90,000 wage earners.

'Fire destroys over $20,000,000 worth of timber every year and kills the reproduction upon thousands of acres of forest lands.

"Within fifty years our present timber shortage will have become a blighting timber famine.

"Forests can be protected from fire, regrowth can be encouraged, conservative cutting can be practiced, reforestation can be accomplished—but it takes from fifty to one hundred years to mature a timber crop.

"Forest devastation must be stopped, lands now in forest must be kept continuously productive, forest lands now devastated and idle must be put to work."

You should be interested in these figures. Despite the fact that present mill construction is strongly trending toward cement and steel, there continues to be considerable amounts of wood used in your community.

The man who made two blades of grass grow where one grew before has been extolled. How about the man who treats his building timbers so that they last twice as long as would be the case if untreated? Such a method conserves the timber now in the forests and at present lumber prices saves that man a pretty penny.

It's up to you and others using timber to preserve it against rot or decay, thus not only making a personal profit by being patriotic, but also aiding in a large measure in the conservation of American forests which will mean much to the country in the years to come.

Southern Textile Exposition.

The officers and directors of the Fourth Southern Textile Exposition, to be held at Textile Hall, Greenville, S. C., October 18th to 23rd, have now mailed their official announcement and are receiving applications for exhibit space.

Application for such space should be made early as the prospects now indicate that there is not going to be enough to go around. Also a special committee of Greenville "Boosters" has been formed to make a special effort toward an even larger attendance than has ever been had at previous expositions, therefore, with your application for space should also go your reservation for rooms for any attendants that you expect to have present.

While Manager F. M. Burnett is doing all that he possibly can to locate everyone satisfactorily, you will greatly assist, if you expect to exhibit, if you will take immediate action on these important matters.

There is a strong possibility that the United States government, through the bureau of markets of the department of agriculture, will conduct at the Georgia School of Technology in the near future a series of spinning tests that will be of great benefit to the textile industry.

Professor C. B. Seal, head of the A. French Textile School at Georgia Tech, has received a letter from the government, asking whether such tests can be conducted at the school. He has replied, setting forth Tech's resources in this particular.

"We can and do perform some tests for southern textile mills," said Professor Seal. "Sometimes, however, we receive requests for experiments which we cannot perform because of lack of equipment. If Tech was properly equipped in its textile department, this would not be the case. We could handle any and all such requests and would thus be of invaluable aid to southern industry, which is now often dependent upon northern laboratories for just such work as this."

The annual meeting of the National Council of American Cotton Manufacturers was held during the past month at the Hotel Biltmore, New York. The following officers were elected: Stuart W. Cramer, Charlotte, N. C., chairman; Russell B. Lowe, Fitchburg, Mass., vice-chairman, and W. D. Adams, Charlotte, N. C., secretary.

Outside of routine business and the annual election, the only other important matter reported as coming before the Council was an amendment to the by-laws making the term of officers two years instead of one as in the past.

The directors of the National Association of Cotton Manufacturers have voted to hold their fall meeting at the Maplewood Hotel, Bethlehem, N. H., September 23, 24 and 25. Probably the first session will be held Thursday evening, September 23, to be followed by a reception and dance. Sessions will also be held Friday morning and evening, with a golf tournament and other sports in the afternoon, as was the custom before the war, and the final session will no doubt be on Saturday morning

Village Planning—A Study in Housing

BY KENNETH R. CRUMPTON.*

Housing cannot be dealt with, studied, and solved as an abstract or isolated subject. Its relation to a community and the various activities which go to make up that community is exceedingly important and any housing project which does not consider, and consider carefully, its relation to these other activities bringing about a solution based on them, is not constructive or of permanent value. Whether the enterprise is that of an individual industry building homes for its employees, or that of a community taking care of the industries at large within its province, this relationship holds true. It is granted, there are more things to be weighed in the latter than in the former. By activities are meant industries, places of employment, transportation, traffic, circulation, utilities, shopping, and shopping centers, schools, educational centers, play grounds, parks, amusements, and recreation. The careful analysis of these activities as related to housing and residential communities, will dictate the feasibility and practicablity of the development of one locality or district over another, and will later establish its success.

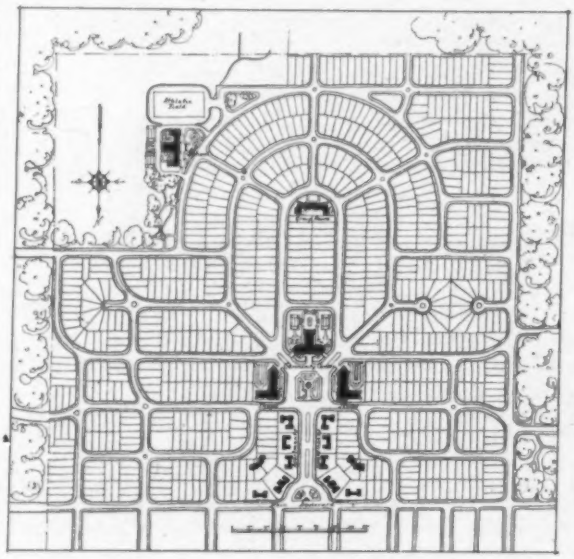
It is not alone important to provide the proper sort of houses or homes for a community, but it is also of equal, if not of greater, importance, in providing these, that the community, general surroundings, the environment, be developed at the same time. Too often, houses admirable in their general arrangement, design, and construction, and well adapted to the various classes living in them, are failures as a whole and as a project, because of failure in developing environment at the same time. What is it after all that establishes for you or me decision in buying a home? The home itself, its general arrangement, design, etc., must be suited to our desires, but after all it is the environment, general surroundings in which it is situated, that finally brings decision to one home over a multitude of others.

Environment is not an intangible, illusionary or imaginary subject, something to be derived only by mere chance and by reason of considerable added expense. Environment is decidedly tangible, concrete, and is to be had at little, if any, increased expense. It is to be had and developed through the careful handling of homes in a group the placing of one in its best relation to the other, as regards its general composition, color, and material treatment, finally tying them all together as one harmonious unit through the planting of a few trees, shrubbery, and grass. Everything carries with it that note of finish, organism and unity. Once this has been accomplished, it must be protected, protected against objectionable features creeping in which tend to destroy the good already done and to undermine values. Protection is quite readily obtained through the placing of certain restrictions over the usage of different areas, varying these restrictions over various areas so as to allow the careful building up along well regulated and definitely controlled lines, at the same time allowing a certain amount of freedom in working the individual desires. Zoning, so to speak. Whether the project is one to be entirely built up at the present or gradually added to, it should be considered in this way, through a carefully worked out, well organized and comprehensive scheme which will later function without discord. In this connection it is well to locate the probable shop center, the amusement center, play grounds, park areas, schools and community buildings.

Community buildings are of the utmost importance practically from the start as they are one of the best vehicles for directing a rightful influence in the upbuilding of the community. They form the nucleus about which and through which the life and interest of the community should center. They afford the place where all may meet

*Member of George H. Schwan's Organization, Industrial Housing and Town Planning, Pittsburgh, Pennsylvania.

on the same basis, where employee and employer alike may air and discuss trivial and important questions in the everyday life and building up of the community. Too much cannot be said of the advantages to all of such an establishment in holding and creating interest, harmony and loyalty. Buildings planned for such a purpose should be planned on broad lines, taking care of present needs, and anticipating future expansion as the development grows. The planning of any housing development should weigh these things and realize their importance. The consideration in building up of a housing development should be as carefully thought out and prepared for in advance, as in the building of any plant and its future extensions. The successful operation is regulated by as keen a balance as that of any industrial establishment. There is not a plant owner or operator in the country who goes ahead on any plant or extension work who has not carefully considered and mapped out a definite plan. Yet, when it comes to housing work where sums oftentimes larger than that expended on any plant extension are in consideration, the work has gone on without comprehensive study and with very little regard. Housing is today and will be more and more considered as much a part of any industry as a piece of its machinery. It should therefore have careful, thoughtful and mature consideration.



GENERAL PLAN "RUM VILLAGE," STUDEBAKER CORP. DEVELOPMENT, SOUTH BEND, INDIANA.

The advantage of having home owners as against home renters in a community hardly needs argument. Aside from the stimulus to thrift involved, the home buyer is generally a man with a family, and once his and his family's living desires are taken care of, he is invariably fixed to the community and becomes one of its best producers. The largest turnover and lowest proportionate production is with the single employee class, therefore our best efforts should be directed to attracting and establishing in the community the man with a family. This naturally means a greater expenditure per individual employee, but the additional return, through increased production and reduced turnover, well repays.

Laboring classes have already manifested certain demands in connection with housing and general living conditions. Five years hence they will have still more advanced ideas. If housing work is to be of permanent value, it is necessary to consider the present desires and anticipate those of the future, taking care of the present in such a way that modifications or improvements in the way of certain essential conveniences can later be added with a minimum amount of change.

To bring about the proper relation of housing to the employee, it is necessary to analyze the different groups as to nationalities, wage scales, etc., to understand the characteristics and customs of each group and to provide for them accordingly. This will mean that in a given development where different classes are living, differently sized and arranged houses, fitting the various standards must be provided. To a large extent, certain districts within the development will have to be given over to certain class or nationality groups. Segregation is not entirely successful, yet certain classes will not mingle harmoniously. It is important to understand these relationships and in developing to so group classes that disturbing factors will be avoided and community peace attained.

Whether the development is to be one in which the individuals will purchase or rent their homes, the question of wage scales to house costs is a major consideration. We cannot go ahead and produce homes for employees, the payment for which will be a burden. To exceed a certain figure for installment or rent payments will only result in wage scale disturbance. It is a mistake to figure on writing off a certain amount of cost charges, or to reduce rents to less than interest and carrying charges in order to bring the selling or renting terms in line with ability to pay, as this borders on paternalism and sooner or later brings dissatisfaction. Having given the employee the advantage in cost by reason of quantity, group building and furnishing him with the further advantage of an attractive environment, he will readily expect to pay just costs, no more, no less, so that fitting costs to earning capacity is imperative. Roughly, it may be assumed that a man can afford, without hardship, to pay from 20 to 25 per cent of his income when renting, and in buying from 25 to 30 per cent. The additional amount in buying is really in the nature of savings.

Many different sales plans are in force with various companies maintaining and developing housing projects. Most of them contemplate a down payment of from 5 to 10 per cent, with monthly installments of from ¾ to 1 per cent. Interest charges are generally figured in addition. The houses are disposed of on contract, the deed being held in escrow until the property is clear, which generally means from ten to sixteen years. Plans eliminating speculation are sometimes adopted whereby the cost price is increased over the first period of years, at the end of which time the purchaser still in good standing, is credited with the additional amounts paid by reason of an increased selling price, and his following payments are made on the basis of actual property costs. Outside parties are allowed to purchase homes in many developments, the price being the same as that made an employee.

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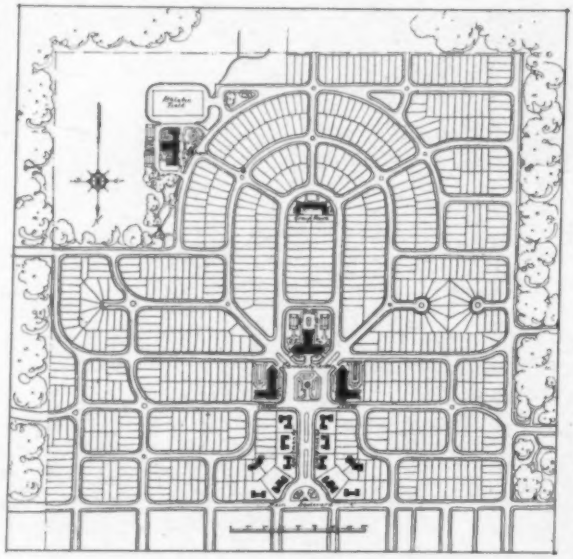

General Plan "Rum Village," Studebaker Corp. Development, South Bend, Indiana.

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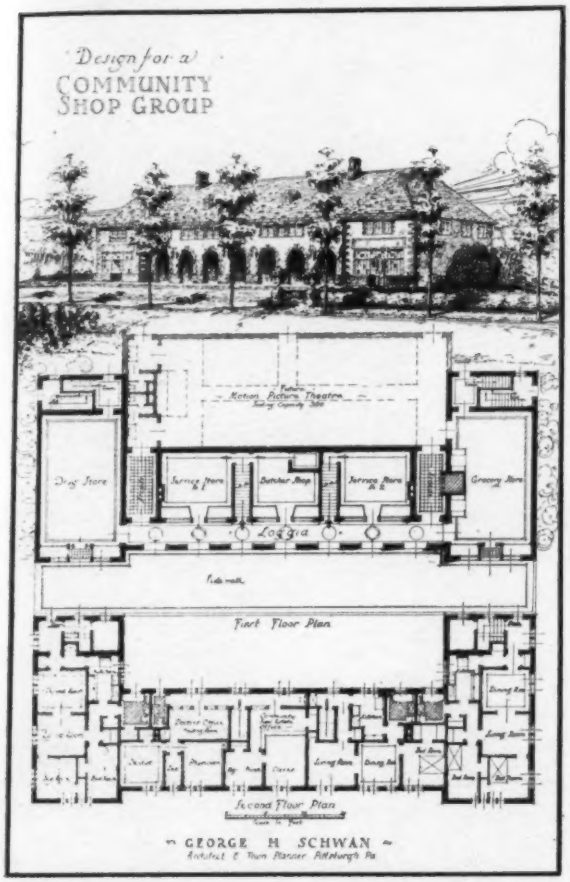
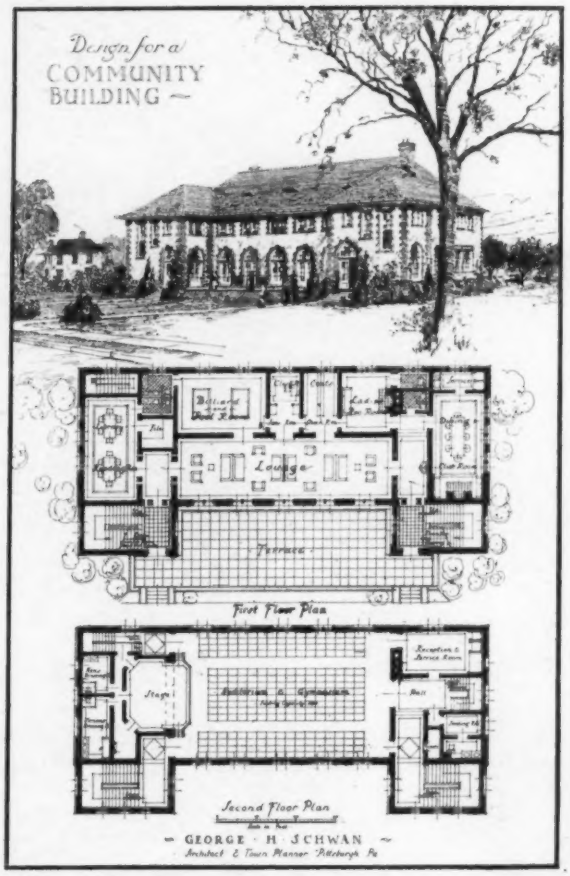


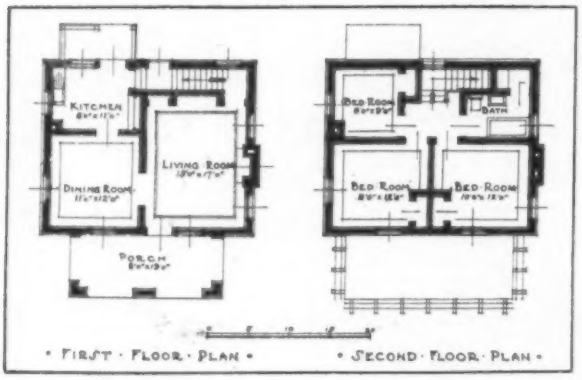


but terms are based on regular real estate basis, making it necessary for the outsider to purchase outright, arranging first mortgage in the usual manner. Some companies carry an insurance feature in their sales plan whereby the purchaser pays a nominal amount in addition monthly, carrying insurance to the extent of the unpaid balance on the property.

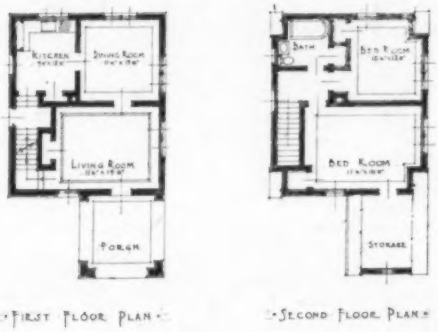
Bearing these things in mind it is absolutely necessary not only to know beforehand, but to produce homes providing proper living conveniences and accommodations which the prospective occupant can carry. With the cost of materials and labor today, it is absolutely necessary to use the best judgment in the selection of materials and in planning, so as to utilize them to the utmost, constructing substantially, thoroughly, and attractively, without waste in space or material. The problem is that of obtaining a maximum of living accommodation within a minimum space. To do this, plans must be devised that use materials in their standard lengths or units, the rooms are arranged and sized according to their importance and use. To plan certain rooms larger than is necessary for equipment, general convenience, and accommodation, is wasteful and means by reason that other rooms for other purposes must suffer or else the building be larger than is necessary.

Planning small houses and small rooms which still produce to all practical appearances and purposes the same space as larger ones, becomes a study of furniture and domestic equipment placing in relation to them. Whether the average and standard rug sizes and the furniture that one ordinarily has will find place without doubling over or without protruding into some door or window space, obstructing passage, is a vital consideration to the future tenant. All these things must be considered in advance of the building operation, and the plans so devised that trouble of this nature will not be encountered.

Generally speaking, houses of five and six rooms are being built today in industrial developments or villages. These have fully excavated, cement floored basements; living room, dining room and kitchen on the first floor, and two or three bed rooms, with bath, on the second floor. In the basements are installed hot air furnaces, laundry trays, and hot water heating apparatus. In some instances, roughing in only for these is done at the present time, contemplating the later installment of equipment. The living rooms have gas or small coal grates, coat closets, and in some cases a built-in book case. The kitchens are equipped with good enameled sinks, plenty of drain board space, and large china and food cupboards, the latter protected by dust-proof doors. Convenient space is arranged for refrigerator either on the stairway leading to the basement at a point of grade entrance or else by an enclosure on the rear porch. The second floor provides excellent closet space for all bed rooms, and in addition a good storage closet for bedding and linen. The bath rooms are equipped with good substantial enameled iron ware fixtures, and medicine cases. Where possible, the lower portion of the walls and floors in the bath rooms are finished in some neat substantial impervious materials. Attic space is not finished off but good access provided so that



SIX ROOM HOUSE.
PENNSYLVANIA RUBBER CO., JEANNETTE, PA.



FIVE ROOM HOUSE.
SALEM HOMES DEVELOPMENT CO., SALEM, OHIO.

the space may be utilized for storage purposes. It is highly important that attic space be well ventilated so that upper rooms are more livable in extreme weather. Where electric current is available, the houses are completely wired and light is supplied with substantial but inexpensive fixtures. Emergency gas outlets are installed here and there and one or two taps for auxiliary gas heaters provided, when such gas is available.

As for the general materials for construction for houses, it is largely a matter of local conditions, customs, and availability, to determine. Investigation of conditions will readily determine the practicability and economy of certain materials over others. In some localities where slag and sand are readily available, cement blocks will be the best and cheapest for basement walls, and possible superstructure construction. In other localities, vitrious tile will be the best to consider for both basement and exterior wall construction. Again, it may be found best to use tile or concrete for basement walls, brick, tile stuccoed, brick veneer, frame with clap-boarding, or stucco for main exterior house walls. These things are determined, as stated before, by reason of custom, availability and cost, but it is of great importance that the choice be made with a thorough understanding of results to be obtained and that such materials be used as will produce a house of durability, good appearance, and structural soundness.

Roofing materials are largely based on the same considerations, with the additional consideration of fire resisting qualities. Slate, tile, and asbestos, we know, measure up to this consideration, asphalt shingles to a large degree. In some localities good slate ribbons can be had and laid as cheap as any other materials. Tile is generally high, asphalt shingles generally run cheapest and have certain advantages, but care must be used in the selection of these shingles and in seeing that they are properly applied. The multiple or strip type is the cheapest but are more inclined to buckle and curl on the roof than the individual type.

As to comparative costs of one type of building construction over another, the following relationship holds true in most localities. Frame clapboard lowest, frame with stucco 3 per cent additional, brick veneer or stucco on tile 10 per cent additional, and brick with tile back up blocks, 15 per cent over frame.

Very often the relation of building and accommodation cost will effect the extent to which certain things in equipment can be taken care of for the present. Oftentimes it may be necessary to develop group types of houses for economy. These have many desirable features in appearance but should be carefully handled to maintain the privacy of individual homes. The big thing in the exterior treatment and design is to study the individual houses in relation to one another in a group, so using materials and combining colors that the whole group is composed, restful and attractive. Proportion, refinement in detail, and absolute simplicity is the keynote of the successful small

house design, and it should be our utmost endeavor in producing housing and housing developments, to give the houses a character which will be enhanced as they weather and age rather than to produce a development of houses which rely on peculiarities, eccentricities in design, newness in appearance and paint, for their appeal. Housing of the former kind will appear to be an integral part of the development, costs no more and often less, and will have permanent value.

Solving the Employment Problem

BY W. I. FINNETNEY.

Labor turnover is always a serious problem with a manufacturing plant. The expense of breaking in new operatives is frequently well worth consideration and inasmuch as a dissatisfied employee frequently moves a family of good workers from the mill, any move tending to stabilize the help and locate any causes for grievance is well worth undertaking. The following story shows the successful experience of a mill in developing an Employment Department, how it was brought about and how it is being operated.

It was about the fall of 1917 that the Tallassee Mills first began developing their Employment Department. These mills consist of one 15,000 spindle mill and one 50,000 spindle mill, employing approximately 1450 persons. The mills furnish houses for their operatives. Tallassee is some thirty miles north of Montgomery Ala., and has a population of something like six or seven thousand people, including East and West Tallassee, and the adjoining settlements within a radius of two miles of the depot.

This information is given to make clearer the conditions under which this development was made.

In commencing this department, the only thing attempted was the index card record of the time made, and the wages earned by each operative. This was done by a clerk who had a small office in the cloth room. The card used was practically the same as the one shown as Fig. 2. At this time no person was required to go to the employment office. The foreman was required to fill out a blank form (since discarded), giving the desired information regarding each new employee put to work, and send it in to the Employment Department, daily. The information regarding hours made and wages earned was taken from the pay rolls. After a few months this plan was abandoned, and an organization of the regular Employment Department, consisting of an employment manager and a clerk, was effected. The place chosen for the office of this department was the front end of the power house building, just across the street from the main mill office, and the personal record card Fig. 1 was added.

The employment manager's duties at this time, that is, at the beginning may be roughly given as follows:

(1) —The securing and proper filing of information required on the personal record card Fig. 1. — This was given by the new employee himself, who, when employed

Mt. V. W. M. Inc. Form 312-10 M-12-20-18

WAGE RECORD No. _____

NAME John Smith MALE

ADDRESS # 7 Central Ave SINGLE

DEPARTMENT Carding # 2 OCCUPATION Frame hand (HEAD OF FAMILY)

Wk.	Mill	Time In	Time Out	Fines	Total Wages	Remarks	Wk.	Mill	Time In	Time Out	Fines	Total Wages	Remarks
1		50	5		XX XX		14						
2		55			XX XX		15						
3		58			XX XX		16						
4		55			XX XX		17						
5		40	15		X X XX		18						
6		22	23		XX XX		19						
7		55	00		XX XX		20						
8		55	00		XX XX		21						
9							22						
10							23						
11							24						
12							25						
13							26						

FIG. 2. FORM USED TO KEEP A RECORD OF HOURS WORKED AND WAGES EARNED. INFORMATION TAKEN FROM THE PAY ROLL. THE REVERSE SIDE OF THIS CARD CONTINUES THE WEEKS UP TO FIFTY-TWO.

Mt. V. W. M. Inc. Form 311-2-3-19

EMPLOYEES RECORD

Name John Smith No.

Address Tallassee Ala.
(No.) (Street) (Town) (State)

Signature John Smith

Age 22 yrs. Male M Single Nationality Naturalized

Date Employed 6/24/20 Department Carding Work Frame hand Initial Wage (Date) XXX

Speak English Speak other Languages Read English Read other Languages

Special Training If any Course Remarks

Has He or She Bank Account Own House Buying House Rents Boards Mrs Jones 1 Central ave.

Next of Kin Geo. J. Smith Relationship Father

Address R. D. # 3. Adairsville Ala

Date Left Reason

Can be found at

Previously employed at Ford's Saw Mill. Experienced Mill Hand (kind) Weaver or Frame hand.

CHANGE IN POSITION, RATE AND RE-EMPLOYMENT.

DATE	POSITION	Department	Rate	Social Number	DATE Left	DATE Discharged	DATE Re-employed	

RECORD

FIG. 1. THE PERSONAL RECORD CARD. INFORMATION GIVEN BY NEW EMPLOYEE AT THE TIME OF EMPLOYMENT. BOTTOM SECTION SHOWS THE REVERSE SIDE OF RECORD CARD.

by an overseer, was directed to the employment office for this purpose before being put to work. Of course, when employed by the Employment Department this information was secured before his being sent into the mill.

This record served a two-fold purpose. It gave the mills the record they desired, and insured the employees' people being promptly notified in case of accident, sickness or death; also that any telegram, long distance message, etc., that might be received for him would be promptly delivered—all of this being taken to or through the employment office. This is a feature of the proposition that seems never to fail to please the new employee.

In the event of an employee's quitting or being dismissed, the order for time due him, signed by the overseer, is taken to the employment office for the employment manager's signature before presenting it to the cashier for payment. This greatly aids in insuring that the worker's side of the question is received before he leaves the plant. It has resulted in a large number deciding to return to work after having been shown the unfairness of their demands, or reasons why such demands could not be complied with.

(2) — The Assignment of the houses to the different families.

(3) — Assisting the foreman in securing help when needed.

(4) — Receiving complaints of any matters affecting employees, whether concerning mill or village.

(5) — The oversight, to a certain extent, of employees' welfare work.

(6) — The receiving of the departmental out list, and record of machinery idle, and their recapitu-

Form 184

DAILY REPORT OF EMPLOYEES' ATTENDANCE

Dept. Carding # 2 Mill Date 6/20 19 20

A EMPLOYEES OUT	B EMPLOYEES IN	C CAUSE FOR ABSENCE	D OCCUPATION
John Smith		Sickness	Framehand
Mary Jones		Vacation	" "
Guy Fleming		Business	Card hand
Sara Moore		No Report	Drawing
Jim Green		Sickness	Pickerhand
	John Atkins		
	Jim Poole		
	Ben Knight		
New	hands		
Mary Knowles			
Frank Wood			

E	No.
Employees required to operate all machinery	100
" DISMISSED day before	0
" HIRED " "	1
" OUT today	5
" IN " who were out day before	3
" WORKING today TOTAL	

Remarks: 2 Speeds stopt for overhauling

FIG. 3. THIS FORM IS USED FOR REPORT FROM DEPARTMENT HEADS.. THESE ARE TURNED IN TO EMPLOYMENT DEPARTMENT DURING THE FIRST HOUR OF THE MORNING.

lation for the superintendent's desk. It is from these that the record of any employees out, is taken.

(7) — The handling of transfers from one department to another. This is a matter which frequently causes the overseer no small amount of trouble and embarrassment, particularly when the person desiring a transfer is one of a family of good workers. With the Employment Department, the overseer is absolutely relieved of this, and the responsibility for any transfers rests on the employment office.

(8) — The keeping of the rent cards for the office information for deducting rent.

The criticism made of this method was that it added another bidder to an already large number (there are thirteen departments in the two mills) who were employing labor. To overcome this, it was decided to complete the Employment Department by turning the employing altogether over to the employment manager, the overseers to give him orders for such help as they might require. In this way, the mills are provided with a centralized employing department, and the danger of one department's having machinery stopped for help while another department has more that it needs, which was formerly the case, is largely evercome.

Any applications for work, whether to the overseeers or superintendent, are referred to the employment manager for answer. It might be well to mention just here that the overseer has the right to reject any employee sent him from the Employment Department, which he prefers not to work. Instances of this kind, however, have been extremely rare, and due in every case, to some condition with which the employment manager was not familiar.

In making up the monthly "Turn Over" by departments, a form furnished by the Library Bureau, Boston, Mass., is used. Another larger one furnished by the same people is used for the plant. These can be obtained very easily and are simple in their application. Owing to this, I have not included them in the illustrations.

In closing, there are several conclusions that may be drawn from the experience of these mills with the Employment Department:

(1) — That in starting an Employment Department, it is wise to "make haste slowly"; to start with the keeping of records and gradually extend it to cover other duties.

(2) — One thing that is invariably mentioned when mill executives discuss the creating of an Employment Department, is the objections likely to arise from the overseers. It goes without saying, that at this point, the success or failure of an Employment Department is to be made. However, if the superintendent is a man who can take the overseers into his counsel and show them why and where a centralized Employment Department will

GENERAL MILL REPORT.

Date _____ 19____

Department.	Hands Out.	QUITS
Carding #1.	10 Out.	
Carding #2.	11 "	
Spinning & Twisting #1.	7 "	Vera Evans,Ill health.
Spinning #2.	20 "	
Warping & Drawing-in.	5 "	
Slashing	1 "	
Twisting #2.	6 "	
Weaving #1	7 "	L.M.Gates,Going to farm.
" #2.	7 "	
" #3.	11 "	
Cloth Room.	7 "	
Machine Shop.	5 "	
Outside	4 "	
Total	101	
Machinery Idle.		
Carding #1.	2 idle on 1.00 hank Intermediates;slubber roving short.	
" #2.	2 idle on 1.75 " Speeders,for overhauling.	
Weaving #3.	4 " for warps.	

FIG. 4. THIS REPORT IS A RECAPITULATION OF THE DIFFERENT DEPARTMENT REPORTS, FIG. 3, PREPARED BY THE EMPLOYMENT DEPARTMENT DAILY AND SENT TO THE DESK OF THE SUPERINTENDENT.

be an advantage to all concerned, and if the employment manager is a man who is able to command the good will of the overseers, all will be well. Until the point is reached where all can and will cooperate, with the employment office, the best results will not be forthcoming.

(3) — The employment manager must be absolutely dependable and fair, as well as even tempered. In settling misunderstandings and differences that arise, he will have to maintain, at all times, an impartial view point. It is by no means always the worker who is to blame. Overseers are just as human and likely to errors as the rest of us. It will be far better for the employment manager to admit this, and appeal to the reason and sense of fairness of the workers than to take the untenable position that the overseer is always right, regardless.

It is not the intention of this article to imply that the creating and developing of an Employment Department is as easily and smoothly done as perhaps the story of it would make it appear; or that it always functions perfectly; or that the first person secured for the Employment Department will prove equal to it. All this must be worked out by constant experiment and patience; but for some time now, this department has been giving splendid service at these mills. Perhaps the most convincing argument in favor of this department is the fact that not one of the overseers would want to go back to the old "hit or miss", unsystematic method of employing help; when it was altogether up to him to secure the help necessary to operate the machinery in his department and he had to compete with the other overseers. The centralized Employment Department has already proven itself a successful institution.

A number of other mills have adopted this plan within the last year, and while, from information at hand, they do not seem to have up to the present time gone as far as have the Tallassee Mills in turning the employing, transferring, etc., completely over to the Employment Department, yet they are finding it of great assistance.

There can be no doubt but that a properly conducted Employment Department is an indispensable aid to good management.

At a special meeting of the board of directors of S K F Industries, Inc., New York City, held May 13, 1920, the resignation of B. G. Prytz as president was accepted, Mr. Prytz having been elected managing director of the parent company, with headquarters at Gothenburg, Sweden. F. B. Kirkbride, who has been vice-president since the organization of the company, was elected president to succeed Mr. Prytz.

The consolidation is announced of Westinghouse, Church, Kerr & Co., Inc., and Dwight P. Robinson & Co., Inc., under the name of Dwight P. Robinson and Company, Inc., engineers and constructors, with general offices at 125 East 46th Street, New York.

The Future of Cotton

BY BURTON H. ALLBEE.

Cotton has yet to undergo the process of reconstruction. Silk has nearly passed the most critical point in its reconstruction program. Wool has started. The raw silk interests in Japan have sought and received assistance from the government. The wool growers in this country are seeking financial assistance to tide them over their difficult period. What will cotton do when its time of reconstruction comes?

The question is worthy some consideration. Reconstruction must and will come. No industry can expect to escape it, and though at present the situation doesn't appear to warrant any possibility of a change it will come eventually, perhaps suddenly, as it did with silk, and perhaps the results will be even more destructive. All cotton interests know this, or they should know it, and what is more, they should, if they have not already done so, prepare for the change. Shifting conditions will have to be met and overcome, and unless preparation arms the industry for the change it may cause a worse upheaval than silk experienced, or worse than is going forward in wool at present.

Just now high prices are continuing. Buyers are not operating freely and the whole industry is more or less affected by uncertainty regarding the future. But with such men as direct the destinies of the great institutions this uncertainty cannot last long. Whether the changes come soon or late the result will be beneficial rather than otherwise. No member of the cotton trade need worry about the future. But he should set his own house in order so that he need not be caught, as some in the silk industry were caught, with large stocks bought at high prices and thereby suffer more or less serious losses.

Markets and competition are likely to be the great factors in the development of the cotton industry of the future. They have been in the past, it is true, but both promise to be greatly emphasized in the future. A time of stress, of such fierce competition that only those prepared with the best of everything, including labor, can feel sure of coming through in anything approaching success is at hand. The changes which have been brought about by the world upheaval are so great that few comprehend them and fewer still have yet reasoned out all that they may mean, or all that they may require in order to assure the rehabilitation of the cotton industry upon a basis which warrants profitable operation during reconstruction times.

Better trained executives are needed. This is an old and trite saying, yet it is quite as true today as ever. Never will it be possible to have too many well trained executives. The more the better. And the wider their training and the better they understand their business the more profitable will be the operation of the mills in their charge.

And one feature in their training must not be overlooked. It ought to be made a principal feature under present circumstances—knowledge of the best means of handling employees. While the world is filled with unrest, as it will be for some years to come, it will be necessary for executives to be trained in the management of help. The human element must be considered and made prominent. Employees see no reason why they should not be considered as human beings, with aspirations and hopes which are quite as important to them as the aspirations and hopes of employers. It is no small matter to forget these human elements. Quite the opposite. They must be remembered and they must be handled in a human way. Probably most executives in the cotton industry know this, but some other industries haven't yet learned the real relation between treating men as human beings and the increased output of the mills in which they are employed.

Industry after industry is tied up more or less and all sorts of difficulties are encountered because some executives are hardly human in their management and forget that the worker is entitled to live his life in the broadest and best way quite as much as is the employer.

A discussion of labor problems seems somewhat superfluous in view of the fact that it is almost impossible to get labor. Perhaps cotton mills are not so badly situated as some others. They can get labor of a kind, but it is not always labor which performs the best work. All industries are suffering from that lack. Those who have studied the situation are not altogether satisfied that improvement is coming. They seem to think that the supply of labor and its quality are likely to be matters which will require considerable working out and modification before they can be assured that it will come up to pre-war standards. The unrest and dissatisfaction which are so much in evidence exert some influence upon the quality of labor, and perhaps other individual influences enter into the problem, but in the main it seems to be a general breaking down of morale which prevents the worker from doing his best, or exerting himself when and where it will be of the most advantage to him and to his employer.

So acute has this condition become in some localities that mill men have organized schools in which they are teaching their executives how to manage men. And one superintendent said not long ago that he never realized until he attended this school how much of the unrest in his mill was due to his own lack of knowledge. Not all have yet learned that managing men is the most important part of the work of their positions. These schools have proven profitable investments wherever they have been organized and many mills are benefiting by the knowledge the executives have derived from lectures and the studies required.

A few men are born executives and understand the management of men by some form of intuition which seems to touch the weak point without difficulty, but where one such executive exists there are scores who are not possessed of this happy faculty. The benefits derivable from schools where they can be taught what to do and how to do it will benefit the whole industry by increasing the efficiency of those mills which are now lagging in the race for development. The executive needs training quite as much as the worker on the frame.

Probably the labor problem, which includes obtaining a sufficient supply of competent help, their training to perform their duties in the most efficient manner, and the training of executives to enable them to handle the workers under them to the best advantage, is as important as anything in the production of cotton goods. Yet, it is but one of the

questions which mill men need to study for the purpose of finding some satisfactory solution.

Distribution is another important factor, and this like the others, will become even more important in the next few years, since transportation is a question which goes beyond the mill and reaches out into the fields of distribution in a way which becomes appalling when considered in the light of present difficulties. Much of the success of individual mills depends upon whether the product can be sent to customers quickly and at a reasonable price for freight charges. Lately the tendencies have been the other way. Shipments have been slow, or delayed, and cost has increased in a way to frighten those who see in the increases already named only a small part of what is to come.

Cotton manufacturers cannot utilize the motor truck with the same advantage that silk manufacturers can. The centers of manufacture are not located so near the centers of distribution, yet the motor truck will have to enter into the distribution of cotton goods more than it has yet. In some localities it is profitably used for long hauls. In others it is not yet so utilized, but manufacturers may find it necessary to supplement what is sometimes an inefficient and wholly unreliable railroad service by fleets of motors which will gradually extend their radius until they cover long distances. They ship machinery and other heavy goods from the manufacturing towns of Pennsylvania to Boston by motor. One company has a fleet of twenty thus employed now, and more are likely to be added. Silk manufacturers ship their products from Pennsylvania mills to New York and take the raw material back, and say that the shipping expenses are greatly reduced by utilizing such trucks. Moreover, the process is mobile and they can put their shipments where they want them without waiting for some transportation company to move.

Cotton men would not be under the expense that silk men are because neither their raw materials or the finished goods tempt thieves as silk does. They need not, therefore, be to the expense of employing armed guards to go with their trucks as is required over numerous routes that silk trucks travel. The motor is the solution of a portion of the difficulties of delivery, either into the mill or out of it. And presumably it will come to be used more and more as the months pass.

Price is a factor which will have to be seriously considered in the very near future. Perhaps the readjustment when it comes, will determine this factor, but under present conditions price is such an important factor that it is, in some degree, retarding distribution. With high priced cottons coming rather close to the cost of low priced silks, thousands of women are convinced that they might as well pay a little more and have silk instead of cotton. They do not know enough about silk to understand that high priced cotton is much better for many household uses than low priced silk, will wear longer and will give better service while wearing, and so they are disposed to neglect cotton and buy silk. This seems especially true in the underwear trades. Glove silk cloth is becoming more and more popular for these purposes, and certain grades of crepes are taking the place of fine cottons for the same purpose.

It might be added here that certain manufacturers of artificial silk have perfected a yarn which can be woven into underwear cloth which they claim is superior to either silk or cotton for that purpose. It is still a question whether or not they are right, but just at present the influence is against the use of cotton as freely as formerly and in favor of other materials, in most instances because cotton cloth suitable for that purpose has reached price levels that seem to most consumers prohibitive. These are facts which manufacturers need to consider in making plans for the future. They may delude themselves into thinking that prices are always to stay up, but they won't. They will never go back to pre-war levels, but they will go down from the high levels prevailing at present. Silk men dwelt in that paradise for a time, but they rudely awakened from their somnolence. They have accepted their losses, have written them off their books and are now doing business upon a different and more satisfactory basis. The time will come when cotton will be similarly affected and the far-seeing manufacturer who prepares for the cataclysm which is certain to overtake him will in the long run, be the one to benefit most largely by rehabilitation.

Closely linked with the question of price is that of competition from foreign sources. Imports have been and are free. Without the latest statistics at hand it is impossible to name accurate quantities, but it is, perhaps, sufficient to point out that imports are likely to be a larger factor in the cotton goods trade in the months to come than they have been in the months past. Foreign manufacturers are under the necessity of securing markets immediately, and they are under the further urgent necessity of securing these markets where they can obtain the money they need to continue in business. America is believed by European interests to be a land of millionaires, made richer by the natural results of the war. Therefore, it is only logical that they should seek here the outlet they require for their goods. Thus far, perhaps, the competition has not been seriously felt, but it is growing and eventually it will be something with which American manufacturers must reckon in their plans for future development.

Furthermore, it is useless to deny that the quality of some of the goods which come from England is superior to many that are distributed from American mills. Thousands of women who use cottons, especially the better grades, know this and they are likely to buy them more and more freely as time passes. Much depends upon what American manufacturers do in the future toward improving their products so that they will compare more favorably with the better grades that come from abroad. American manufacturers can meet any European competition that can be offered, but it is necessary for them to recognize the necessity and devise means for overcoming it. To live on, as many of them have done for years, forgetting that it is essential to be constantly alert and ready to improve their product as needed, is dangerous and may lead to disaster. This much seems to be better understood now than formerly. Manufacturers are not the passive individuals they were a few years ago, though not all have reached the state of wakefulness which seems to be needed.

In low priced cottons the Japanese are becoming adepts. Recent visitors to Japan have discovered that the Japanese are developing a cotton business which will eventually be felt by manufacturers everywhere. While the quality of their work is not yet up to the standard of America and England they are improving and in the low priced lines, at least, they are becoming so expert that they can today meet the manufacturers of those two countries and make it very

interesting for them. Not always on their own ground, but in other markets where they would like to become leaders in supplying such merchandise.

What the Germans may do later cannot now be told. As yet they are not important factors. While the Belgian factory system is nearly on the same basis that it was before the war upset it, the cotton that comes out of Belgium will never cause any difficulty in this country. It is now devoting itself to the development of artificial silk and is succeeding in bringing the industry back to where it was before the invasion by Germany in 1914.

One need not say that American cotton men are not alive to their opportunities. They are. One has but to sit in their conventions to understand that a great many of them are farsighted and are planning for the future. But a good many are not. A cotton manufacturer replied to a question respecting his ideas of the development of the future by declaring that he didn't take much stock in those arguments. "We shall be able to dispose of our products right at home," he said. "Our country is so large that we do not need to go outside for markets. We can consume everything we make at home."

Perhaps that is an extreme attitude, yet it represents in some degree what manufacturers seem prone to think, It isn't that they need to develop foreign markets; it is, rather, that they should make their own merchandise so good and improve the efficiency of their manufacturing processes so much that they can make the better grades at prices which will enable them to sell their product at least on a par with the goods that come from abroad. It is meeting the competition which threatens at home, not reaching out for foreign distribution that is now essential. It is the improvement of the efficiency of workers, speeding up machinery and increasing its output that is most required. And here there seems to be some weakness in the thought of the manufacturer. He doesn't quite see that it is essential to meet this competition on his own ground. Trade that he apparently believes is his. It is holding it that is going to bother him if he doesn't take a different view of the conditions that surround him.

The need is great. But whether all manufacturers will understand the conditions in time to become a part of the post-war development and obtain their share of improvement as a reward for their farsightedness is, of course, for them alone to decide. Their possibilities can be pointed out, but it is quite another thing to argue them into taking full advantage. They may say they see and understand, but unless they make such moves as are required to secure some of these advantages their knowledge and the warnings uttered, together with suggestions for benefiting their trade are alike useless. The importance of immediate action is not always apparent to the manufacturer whose orders are substantially where they have been for years. He believes he is safe and doesn't exert himself. Later he discovers that preparation would have been a profitable investment and he wishes too late that he had done differently. It is largely a matter of individuality, and perhaps no one can wholly control that.

Never before have such opportunities loomed ahead of the cotton trade. Never before have the opportunities for unlimited development presented themselves in such bewildering array. It is good to see that a great many manufacturers understand the opportunity which is theirs and are preparing to take full advantage, yet others, unfortunately, are clinging to the belief that they will always be able to obtain these high prices and that their business will grow, as it has grown since the war opened, without much effort on their part. The man who appreciates what needs to be done is the man who will succeed in building a business which nothing can overturn. It is to the advantage of the cotton trade that so many forward looking men are engaged in it. But it is to be hoped that the number will be augmented until they are all in the same position and all are governed by the same progressive attitude.

Aniline and Its Uses in the Dyeing and Calico Printing Trade.

(*Continued from page* 744.)

Resist Green: 200 grams acetate of lead; 150 grams ferrous acetate 30 degrees Tw.; 75 grams acetate of zinc; 400 grams water; 175 grams British gum.

Resist Orange: 28 grams Metanitraniline; 44 c. c. hydrochloric acid 36 degrees Tw.; 150 c. c. hot water. Dissolve and cool and add: 90 c. c. ice water; 36 grams ice; 52 c. c. nitrate solution (28 per cent $NaNO_2$), filter into 600 grams resist paste L. P. and make up into one liter.

Resist Red: 22 grams paranitraniline; 35.2 c. c. hydrochloric acid; 100 c. c. hot water. Dissolve and add 124.8 c. c. ice water; 75 grams ice; 43 c. c. nitrate solution, filter into 600 grams resist paste L. P., and make up into one liter.

Resist Claret: 70 grams a-naphthylamine hydrochloride 36 per cent; 29 c. c. hydrochloric acid 36 degrees Tw. Dissolve and cool and add 143.5 c. c. ice water; 120 grams ice; 37.5 c. c. nitrate solution; 600 grams resist paste L. P., and make up into one liter.

The resist paste L. P. referred to is made as follows: 4,000 grams acetate of lime 30 degrees Tw.; 1,000 grams 10 per cent gum tragacanth thickening; 900 grams starch. Boil, cool and make up into six liters with acetate of lime 30 degrees Tw.

Print the six foregoing colors on naphthol prepared cloth, pass through a warm bath of soda ash; wash well in warm water, dry, print a cover pattern in aniline black (or pad), steam 2 or 3 minutes in rapid ager. Then pass through gaseous ammonia to neutralize any acidity in the cloth and to re-precipitate any oxide of iron that may have become converted into a chloride, chrome in a neutral bath of bichromate and sulphate of soda to fix the lead salts, soap lightly, wash well and develop the blue by a run through an acidulated 2 per cent solution of yellow prussiate of potash. Wash well again and chrome a second time in 5 grams bichromate of soda, 7½ grams sulphuric acid 168 degrees Tw., 1,000 grams water, at 122 degrees F. Finally wash well in warm water and then in cold water. Dry.

Basic color resists for working along with the foregoing require no special mention, since they consist merely of zinc oxide, dyestuff, albumen and thickening. After printing they are steamed 2 or 3 minutes to coagulate the albumen and the goods are then treated exactly as above. Basic colors are used only in conjunction with azo colors, and sometimes with chrome yellows; but not with Prussian blue.

(This is the fifth of a series of articles on this subject. Others will appear in subsequent issues.—Editor.)

Aniline and Its Uses in the Dyeing and Calico Printing Trade

BY WILLIAM B. NANSON.

PART FIVE.

Resist Styles with Aniline Black.

The "resist" method of printing aniline black differs from the "discharge" method of producing colored and white effects on goods dyed with aniline black in that the resist colors are printed on the white bleached cloth before it is run through the aniline black padder. After the goods are printed, they are dried, padded in aniline black, steamed, chromed, washed, soaped and dried. There is one great advantage to some concerns in carrying out the operations in this sequence, and that is that the printed cloth may be kept in stock any reasonable length of time before being padded in the aniline black. This advantage materially simplifies the process and permits of an accumulation of printed goods which can thus be dyed black at the same time in large quantities. When printing by the "discharge" process the production of the black padding machines must be so arranged as to balance the possibilities of the rest of the outfit and must therefore be kept down to the production of the printing machines, because, if more cloth is padded than can be printed on the same day, it is almost sure to be spoiled, particularly in warm weather, owing to a partial development of the black. Therefore, it is evident that the "discharge" process, while generally preferred by most printers, entails a good deal of organization and demands a good deal of special machinery and arrangements, and a great deal of special supervision at all stages of the game. On the other hand, the course of the "resist" process runs more or less on the lines of the ordinary routine of a print works; the resist colors contain nothing that is likely to deteriorate by exposure to dry air for a few days and can therefore be printed at any time, and the printed goods can then be kept until it is convenient to pad them in the black liquor.

The padding machine used for aniline black in conjunction with the "resist" styles must be different from that employed for "discharge" styles. For this reason a special form of padding machine is used. (Fig. 1.) In the case of resists which have to be afterwards dyed black on the padding machine, if the printed cloth were passed through the liquor contained in the dye box of an ordinary padder the printed portions would be dissolved off and either spoil the padding liquor or run and bleed into the surrounding parts of the cloth. To avoid this the bottom squeeze roll of the padder is arranged to dip into the padding liquor, and the cloth is passed straight through the "nip" and over the cans and dried before the solvent action of the liquor can take effect. We might say here that this system of padding emphasizes the absolute necessity of bleaching or preparing the cloth before printing in such a way as will render it absorbent, a non-absorbent cloth cannot be padded evenly on a machine as shown in Fig. 1, and the work will be bare and uneven. In making white resist pastes, chalk or zinc oxide, together with soda ash, sulphite of potash, acetates of soda, zinc or magnesium, sulphocyanide of ammonia, and caustic soda are the reagents usually employed.

It is necessary to keep the quantity of soluble matter as low as possible so as to reduce the chance of the resist pastes "bleeding" to a minimum, for, should they "run," when wet by the liquor in the padding machine, the pattern would be spoiled; at the same time chalk or zinc alone do not give good results, hence the addition of the other resisting substances. We think that chalk is perhaps the best for white resists where plain black and white effects are to be produced, though zinc oxide may and usually does give good results, but zinc oxide should always be used for the colored resists, because of its conversion into the ferrocyanide which is necessary as a mordant for the basic colors. It is also wise to add a little albumen to the resist paste, this materially increases the fastness of the color. This is not absolutely necessary except in the case of the pigment colors.

The recipes given below are taken from actual practice and are a fair example of the mode of procedure of printing aniline blacks dyed on the padding machine by the "resist" process.

White resist for black and white styles: 200 grams precipitated chalk, 50 grams potassium sulphite 90 degrees Tw., 50 grams acetate of soda, 95 grams of water, 5 grams of ultramarine blue. Beat into a smooth cream and add 600 grams starch paste. Grind this mixture before using.

Colored resists for basic colors, parts by weight:

Red: Rhodamine 6G extra, 16; Auramine O, 4; water, 100; starch paste, 230. Warm together, cool off and add paste R. S. 650.

Pink: Rhodamine 6G extra, 8; Rhodamine B, 8; water, 100 starch paste, 234. Warm together cool off and add paste R. S. 650.

Blue: Thiomine blue O, 20; water, 100; starch paste, 230. Warm together, cool off and add paste R. S. 650.

Yellow: Auramine O, 30; water, 100; starch paste, 220. Warm together, cool off and add paste R. S. 650.

Green: Brilliant green, 25; water, 150; starch paste, 175; paste R. S. 650.

Violet: Rhodamine B, 28; New Methylene blue N, 3.5; water, 100; starch paste, 218.5. Warm together, cool off and add paste R. S. 650.

Bright Green: Acridine yellow G, 20; New solid green 2B, 9; glycerin, 30; water, 170. Dissolve together and strain into the following: warm water, 81; starch paste, 40. Boil and cool off to 140 to 150 degrees F. and add R. S. 650.

The paste R. S. mentioned in these recipes is made as follows: 170 grams zinc oxide, 100 grams water, 20 grams glycerin. Grind together and add: 300 grams starch paste, 30 grams turpentine and 30 grams bisulphate of soda 52 degrees Tw.

The following is an example of a "pigment" resist:

Grey: Ultramarine blue, 100; lamp black, 60; albumen

solution 40 per cent, 150. Grind all these together and add 6 per cent tragacanth thickening, 40; paste R. S. 650.

All the colors mentioned are printed upon white cloth and allowed to lie a day or two in a fairly warm, dry place, the goods must then be padded straight through the nip, as shown in Fig. 1, in the aniline black liquor and carefully dried, then steamed for 3 or 4 minutes in the quick ager, chromed, washed and soaped, etc.

We would say that the padding machine for this class of work has two bowls as shown in Fig. 1. The lower bowl is of brass and the upper one of rubber and the cloth runs with the printed side to the brass bowl, which revolves partly immersed in the aniline black liquor.

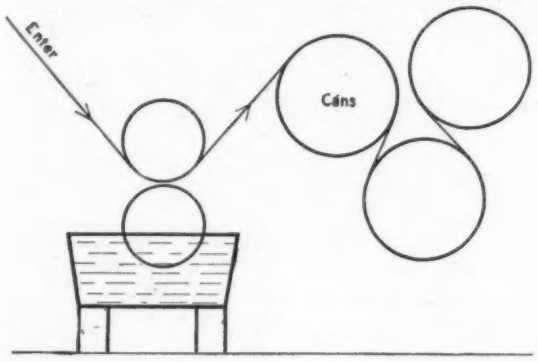


Fig.1

Padding and Covering Aniline Black.

A "padded" or "covered" print displays a pattern either in white or in color, or both combined, on a plain or figured colored ground and materially differs from an ordinary multicolor print, not so much in appearance but in the method of its production, which allows of the same ground roller being used for any number of patterns. These patterns may be printed at different times and then all may be "padded" or "covered" at one time, with one roller, thus effecting a great saving in copper printing rollers. A "cover roller" is a copper roller engraved all over its surface with a fine, delicate pattern, such as for instance, a fine check, a honeycomb, a continuous trail, a series of fine perpendicular lines or of oblique lines or spots, etc., and a "pad roller" is a roller engraved in such a manner as to print a uniform flat tint over the whole face of the cloth, which has the apparent effect of dyeing the goods on one side only.

When a white or colored pattern is required on a colored ground obtained in this way, the cloth is first printed with a mixture containing the color and some substance or substances capable of preventing the fixation of the color and pattern printed by the "covering roller." These mixtures are known as "reserves" or "resists" and they act in various ways, some of them destroy the coloring matter of the cover, some of them prevent its combination with the mordant, and some of them form a soluble and stable compound with the mordant, which is washed out of the cloth in subsequent operations. In addition to their chemical action these "reserves" also act mechanically by obstructing the entrance of the color into the body of the cloth to be printed. In some cases their action is wholly mechanical.

"Reserve" or "resist" effects under printed "cover" patterns of aniline black can be attained by means analogous to those employed under dyed aniline black. In the case of pigment and basic colors they may be attained with zinc oxide using albumen as the fixing agent, while for basic colors with acetate of soda, fairly good and bright resist colors are produced with tannin, together with a little hpdrosulphite and phenol.

The following are some of the pigment resists which may be used under printed aniline black covering patterns:

Yellow: (a) zinc oxide, 80; magnesium acetate, 40 per cent, 150; starch paste, 120; tragacanth thickening 6 per cent, 200; albumen 50 per cent, 150; chrome yellow, 300.

Yellow: (b) acetate of soda, 150; starch paste, 100; 6 per cent tragacanth thickening, 200; albumen 50 per cent, 150; chrome yellow, 400.

Blue: (a) zinc oxide, 80; magnesium acetate 40 per cent, 150; 6 per cent tragacanth thickening, 220; albumen 50 per cent, 150; ultramarine blue, 300; water, 100.

Blue: (b) acetate of soda, 150; 6 per cent tragacanth thickening, 300; albumen 50 per cent, 150; ultramarine blue, 300; water, 100.

Type of basic color resist with zinc oxide and albumen under printed aniline black "covering" patterns: 20 grams basic dyestuff, 100 water, 30 glycerin. Dissolve, cool and add 650 paste R. S., 150 albumen 50 per cent, and 50 of 6 per cent tragacanth thickening.

Type of basic color resist with acetate of soda, tannin, etc., printed aniline black "covering" patterns: 20 grams basic dyestuff, 30 grams glycerin, 10 acetin, 130 water. Dissolve and add to 100 grams 6 per cent tragacanth thickening, 240 water, 60 starch. Boil and add 50 grams phenol. Cool and add 50 grams tannic acid, 75 hydrosulphite NF conc., 80 grams water, 5 formaldehyde 40 per cent, 150 acetate of soda.

This recipe, it is claimed, will give fast resists under either copper, vanadium or prussiate aniline black covering patterns. The mode of procedure is to print any of the cover resists given on white cloth, dry and over-print with a covering pattern (check, stripe, spot, etc.) of aniline black, steam from 2 to 4 minutes, chrome, wash, soap and dry as with the dyed aniline blacks.

Azo Color Resists Under Aniline Black.

Unlike most artificial coloring matters, the insoluble azo colors do not come into the market as dyestuffs ready for application, but are produced on the fiber directly, by the combination of their constituents.

When certain aromatic amines are diazotized and combined with suitable naphthols they give brightly colored precipitates which are insoluble in water, acids, alkalis, and soap solutions, and are, for the most part, tolerably fast to light. In this state the precipitates are used as pigments, and may be fixed upon cloth, like other pigments, by means of albumen, casein and other coagulable bodies. But by far the most valuable property of the insoluble azo colors is that they can be precipitated on and in the fiber, just as easily as in a liquid medium. For this purpose the cloth is first prepared in an alkaline naphtholate, and, after drying carefully, is either printed with, or passed through, a solution of the requisite diazo compound. The color is produced almost instantaneously and is, practically speaking, quite fast; it is very bright in most instances and being deposited in the body of the material instead

of on the surface, as is the case with pigment colors, it resists the usual energetic rubbing processes to which calico prints are subjected in the domestic laundry.

Preeminent among the azo colors are what are known technically as "para red" and "naphthylamine bordeaux or claret." Their beauty and fastness, combined with their cheapness, their simplicity of production, and their adaptability to a great variety of styles, have gained for them a place of such importance that, at the present time, they are indispensable adjuncts to the color shops of all up-to-date print works. Para red is as bright as turkey red, and naphthylamine claret is brighter and purer in shade than any madder dyed claret, but neither is so fast as their older competitors, especially to light, and although they have displaced the latter to a great extent in many styles, the Alizarin (or madder) colors are still unrivaled for the production of the highest class of work, that is, work which is required to possess the utmost possible degree of permanency.

In addition to red and claret, the insoluble azo colors include various shades of orange, brown, chocolate, puce, blue and black. A fine pink has also been introduced lately, but so far a bright yellow, blue and green are still absent from the list. These different shades and colors are obtained by using different amines in combination with different naphthols; and as both of these classes of compounds can be mixed with others of their own class, it is possible to obtain a great variety of effects.

As a rule, two naphthols are used in practice—a-naphthol and b-naphthol. Of these b-naphthol is the more important on account of the superior fastness of the colors

Preparation of the Cloth.

The cloth is padded in an alkaline solution of the naphthol to be used, generally a solution of b-naphthol in caustic soda. Various other substances are usually added to the naphthol solution in order to either improve the shade of the color or preserve the padded material from becoming brown on drying, or on standing for a day or two. Turkey red oil, para soap (ammonium recinoleate), antimony compounds, and aluminate of soda are all employed to these ends.

The addition of an alkaline solution of antimony oxide prevents the browning of the naphtholated goods during their drying over the drying cylinders; and, moreover, it preserves them in good condition for dyeing or printing for two or three days if they are stored in a dark, cool place. This has been verified in practice for whereas goods padded in simple solutions, those containing antimony oxide yield satisfactory results after having been kept for two and sometimes for three days. The other additions chiefly enhance the beauty of the color, and besides this, turkey red oil keeps the cloth soft and tends to give the color a more transparent quality.

The drying of naphtholated material should always be conducted at as low a temperature as possible; a- and b-naphthols are volatile, and if dried too hard they sublime leaving the cloth unevenly impregnated, with the obvious result that in dyeing the color develops unevenly.

For plain dyed shades it is usually unnecessary to make any of the above additions, though of course they exercise no detrimental influence on the shades obtained. But plain shades in a print works are dyed chiefly for resist or discharge printing, such as we are discussing in this aniline black series, and it is an axiom in this style of work that the freer the cloth is of unnecessary bodies, the cleaner, sharper and brighter are the patterns discharged upon it so that, apart from the extra expense, the presence of oil, soap, etc., is very apt to be injurious to azo color resists under aniline black.

The property possessed by metallic carbonates of preventing the development of aniline black has been ingeniously utilized for the production of directly developed insoluble azo color resists under padded or covered aniline black.

A diazo solution containing an acetate of lime, zinc or lead is printed on naphthol prepared cloth. The cloth is then passed through a solution of soda ash or gaseous ammonia (which precipitates the carbonate or oxide respectively of the metal) and finally well washed to remove all traces of beta-naphthol and alkali. After drying the goods are printing or slop-padded on padding machine (Fig. 1) with aniline black, steamed, washed, etc., and dried. White, red and claret resists are obtained by the use of acetate of lime (or zinc, if they are unassociated with lead yellows) and yellow by means of lead acetate. Basic colors may also be employed for pink, green and blue if printed with zinc oxide and albumen.

Prussian blue and a green obtained from a mixture of Prussian blue and chrome yellow are also producible by printing a ferrous acetate and a mixture of ferrous and lead acetates, followed by suitable treatments to develop the colors. For white and azo color resists alone the process consists of the following sequence of operations: (1) pad the cloth in a 3 per cent solution of b-naphthol. dry; (2) print on white, red, claret or orange resists, dry; (3) pass the goods through a tepid solution of soda ash; (4) wash in warm water to remove the naphthol and alkali, dry; (5) cover or pad in aniline black (a) or (b), dry; (6) steam 2 or 3 minutes in the rapid ager; (7) wash, soap and dry.

The treatment in soda ash coverts the acetates of zinc, lime or lead contained in the resists into insoluble carbonates which withstand the subsequent washing operations, and thus acts as reserves under the black. If necessary they may be removed completely after steaming by a short treatment in dilute acid. For chrome yellow and Prussian blue resists in combination with the foregoing, the cloth, after steaming, is chromed in: 1,000 parts water, 150 parts sulphate of soda, 10 parts bichromate of soda—neutralize with ammonia and use at 122 degrees F. Then wash, pass through a slightly acidulated solution of potassium ferrocyanide to develop the Prussian blue, wash again and rechrome if necessary in a slightly acid ½ per cent solution of bichromate and dry.

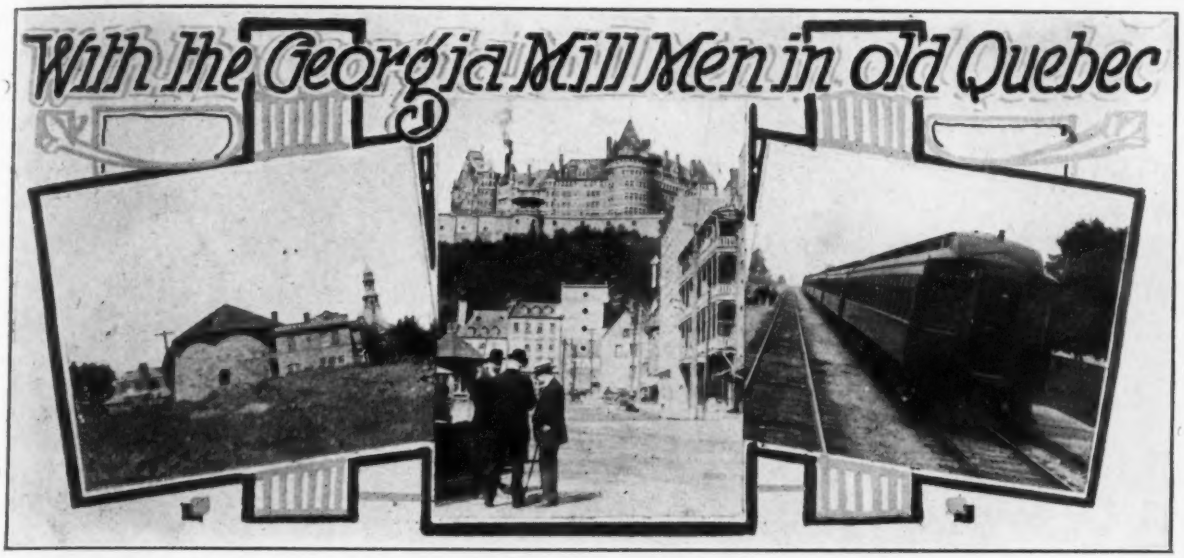
For the production of a white, red, claret, blue, yellow or green effect on a black ground the following colors may be employed:

Resist Yellow: 250 grams lead acetate; 600 grams water; 150 grams British gum. Boil and cool.

Resist Blue: 450 grams ferrous acetate 30 degrees Tw.; 400 grams acetate of lime 30 degrees Tw.; 100 grams British gum; 50 grams starch.

(*Continued on page* 741.)

With the Georgia Mill Men in Old Quebec



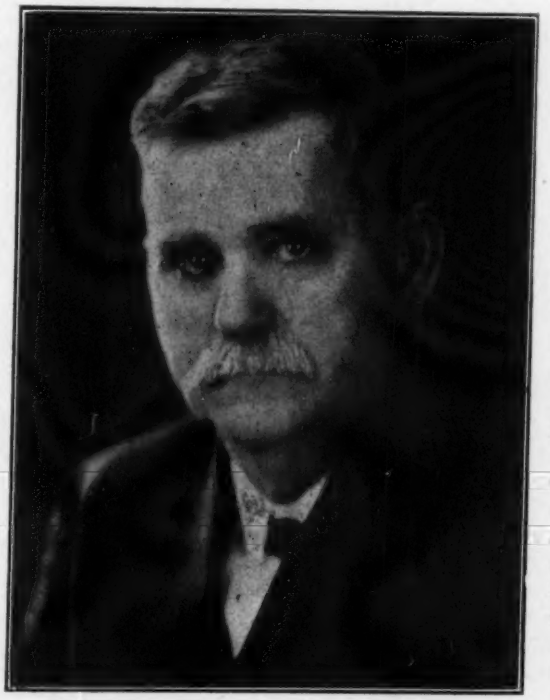
An Old Time Watch Tower. The Chateau from the Lower Town. Our Train on the C. P. R.

I'm a little prairie flower,
Growing wilder every hour.
Nobody cares to cultivate me,
I'm as wild as I can be.
—Rotary Song.

Dear Bill: I have just been to Quebec with the Georgia Cotton Manufacturers and I'm here to tell you it was some trip. The little Prairie Flowers were blooming nicely and were as wild as could be expected.

We left Atlanta on the 26th in a special train over the Ellen N. with the Hon. Bill Bailey in charge and Teddy Chesbrough of the C. P. R. as a passenger. At the last minute Al Smith wired his regrets. He was busy unloading a car of starch or something. This made it necessary to substitute for him in the quartet and Bill Arnold of Manchester was it. Dr. Coleman of La Grange aided in the high notes.

The most noticeable feature of the party was the number of ladies and someone uncharitably whispered that they went to look after their husbands. That such an assertion was untrue was proven by the number of unattached ladies present, some of whom left perfectly good husbands at home to run the mill and tend to the children. When I say unattached I don't mean to intimate that they remained permanently unattached. Not so you could notice it. Not with the variegated assortment of Prairie Flowers that were present and most anxious to be plucked.



PRESIDENT D. A. JEWELL.

Mr. and Mrs. Dorn joined the party at Marietta and Traffic Manager Chears was waiting at the church in Cincinnati. I'll take it back, Bill, it wasn't the church, 'twas the dining car. Being on Sunday morning it kind of got me mixed. Also Chears wasn't the only one who waited. Waiting became a sort of popular pastime for a period.

Sunday afternoon, the train, continuing as a special, rolled into Detroit where the patient waiters of the morning again had to practice waiting. You understand, Bill, it was not the waiters in the dining car who waited, it was the waiters who waited for the waiters in the dining car who later waited at the parcel room in Detroit while all the owners of Ford cars in the world checked their baggage. Detroit has just replaced Cleveland as the fifth city and the inhabitants are so proud of it they all come to the station on Sunday afternoon and check hand baggage to impress the stranger within their gates with the rapidity with which the population is multiplying. Speaking of multiplying, Canada has them beaten—but that comes later.

Albert Matthews and his lady sextette opened their bags on the waiting room floor in true emmigrant style and selected such apparel as they desired and hiked for the Statler to cleanse themselves of Ohio and Michigan dust before crossing the line. Possibly afraid it was dutiable. Speaking parenthetically, it certainly takes a lot of ladies to look after some men and I believe that every-

one present will agree that Al Matthews was well chaperoned.

At Detroit Mr. and Mrs. Frank North joined the party. I don't know just where they hadn't been, but Frank told

IN THE SHADOW OF CHAMPLAIN.

At the left—Mr. and Mrs. J. C. Fargo of Augusta. Right—Mr. and Mrs. C. M. Walker of Monroe.

some weird tales about sleeping in or on a trunk in and out of baggage cars in order that Mrs. North might have clothes to wear. He later advised that the way to keep from losing a trunk was to insure it for $500. Therefore, by sticking to the insured trunk and sleeping with it, Frank was always certain that Mrs. North could not only find her clothes but also her husband. This method is not patented and ladies with husbands who occasionally become mislaid should have the facts brought to their attention.

Detroit proved to be a very attractive city of a million or more automobiles. The only safe way to travel is in a car and then only with a native driver. Ours came from Connecticut and he told me in confidence that the way he learned to follow the curving traffic arrows on the Second Boulevard was by practicing dodging rocks when he used

A FREIGHTER ON THE ST. LAWRENCE.

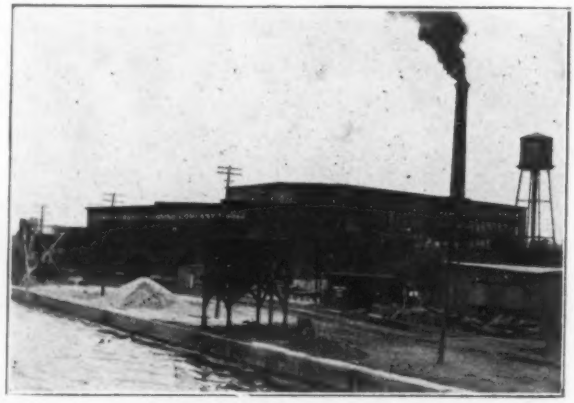
to be a plowboy in Connecticut. Second Boulevard is one of a number of very beautiful streets, but oh boy, if that's the second one they built their first one must be like a merry-go-round.

At Detroit we lost Chip Robert and party. I never learned just what Chip had done to prevent his entering Canada, but I am satisfied it was something rotten, as he kissed us (editorial us) goodbye as soon as we got to Detroit. When last seen he was rushing for a train to get out of a city he'd been in less than an hour. Something rotten somewhere. A good case for William J. Burns or William J. Bryan.

We reached Toronto early Monday morning and Mr. and Mrs. Kennedy and the customs inspector joined us at the same time. Kennedy assured me, however, there was really no actual connection in their simultaneous appearance. As the party had all agreed to leave Canada inside of a week when they boarded the train the night before, the Canadian officials were lenient and gave us a suspended sentence.

All day Monday we were traversing southern Canadian farms. Fields pink with clover, orchards, sleek cattle, well built barns, prosperous looking farm houses, more fields white with daisies or yellow with wild mustard, and again littered with haystacks; clear bubbling brooks and occasionally small, substantial looking towns; rippling fields of grain yellow in the sunlight, neat, well kept garden plots and brief glimpses of Lake Ontario in the distance greated our eyes and assured us that we were really entering the gates of a farmer's paradise.

Bill, if I ever decide to be a farmer I am going to live summers in southern Canada. Finest farming country in



THE MOUNT ROYAL BRANCH OF THE DOMINION TEXTILE COMPANY AT MONTREAL.

the summer-time I ever saw. I wouldn't give a cent for it in winter, though, they have to cut too much wood in order to keep warm. Did you ever cut any wood Bill? Well, I have and next to shoveling snow it's a fool job. You shovel snow today and tonight it snows all over again and tomorrow you can shovel over the same ground and sometimes the snow's deeper the second time; also when you cut wood you burn the wood and litter up the whole place with ashes that have to be cleaned up and emptied, and then you cut up some more wood. A fine place in the summer is Canada.

'Twas along somewhere between Toronto and Montreal that we began to be really conscious of Bill and Peggy. After achieving consciousness we never thereafter became unconscious. Also it was along in the shank of the evening on Monday that Ted Chesbrough decided we needed exercise and arranged for us to change trains and stations at Montreal. We could change anything by that time, even Canadian money.

At Montreal we were met by Major Fred B. Gordon of Columbus, but were bitterly disappointed when John Man-

MRS. FORSTER AND SANDY HOLDING HANDS.

deville failed to keep his appointment and bring with him the supply of cork screws promised by Carroll. Harry Roberts, however, became a successful substitute, not for Mandeville but for a cork screw. Given a sufficiency of knives, Harry can perform removing operations like a true surgeon.

At the Windsor street station in Montreal the C. P. R. officials had prepared a wonderful dinner in honor of our 20th Annual Convention, and of which I append the menu just to show you one of the things you missed by not going.

Grape Fruit O Porto
Fumet of Tomato, Madrilene
Celery — Spring Onions — Radishes
Filet de Turbotin, sur le Plat
Noisette of Spring Lamb, a la Menthe
New Potatoes. Rissolees — June Peas
Roast Milkfed Chicken, au Cresson
Green Asparagus, Vinaigrette
BUFFET FROID
Pate of Ham and Veal — Foie Gras, Strassbourgeoise
Galantine of Capon — Jellied Tongue
Roast Beef
Biscuit Tortoni
Cheese and Toasted Crackers
Fruit

The dinner was served in a new dining hall that has just been completed to augment their former restaurant facilities, the opening night and the Georgia delegation arriving simultaneously. On the entrance of the visitors from Georgia the orchestra played "So This is Dixie" and other appropriate melodies. The management had arranged to have the tables occupying the middle of the room moved aside, so as to provide a floor space for dancing during the courses of the dinner.

The new premises have a floor area of 1,800 square feet, and a seating capacity of 150 persons, and was situated directly under the ordinary dining room of the station, a broad staircase connecting both rooms. The walls of Caen stone finish and the duplex system of lighting enhanced the appointments of the room. The large arch windows were artistically draped with hangings of old rose velour embroidered with gold, and the arrangements of large palm plants and the table decorations of pink, white and red carnations, sweet peas and a profusion of ferns all combined to render the dining room one of the most attractive of its kind in Canada.

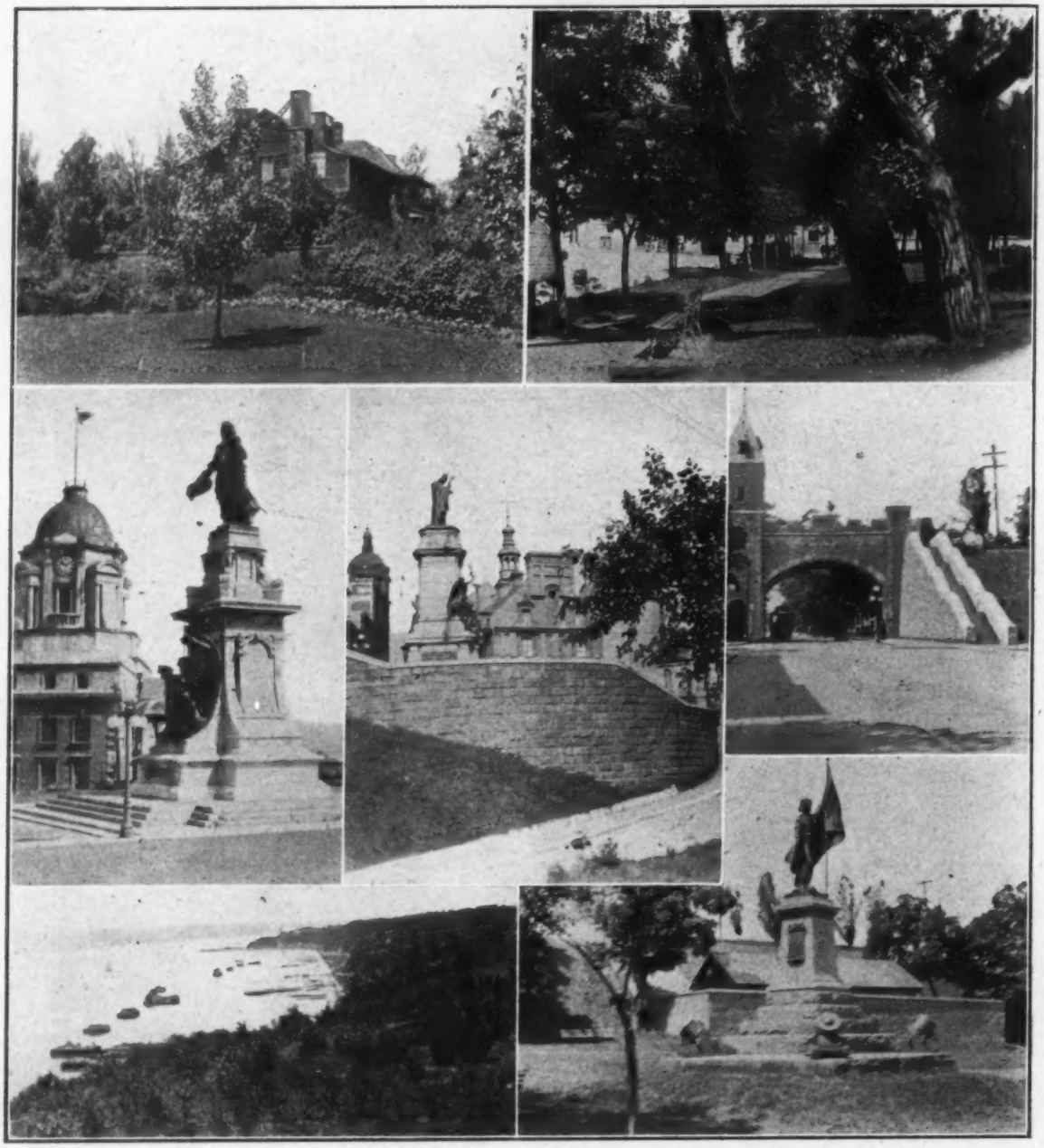
'Twas at this dinner we first met Col. George H. Ham of the C. P. R. Also it was at this dinner that Lechler first broke into speech. He had broken into most everything else en route and had even nearly broken some of his traveling companions with his trained bones, but this was his first attempt at public speech and he was loudly applauded because he said so little.

Transferring to the other C. P. R. station that no one but Lechler could pronounce, (he couldn't spell it on a bet) we found Mr. and Mrs. Jennings of Atlanta awaiting our arrival. Here Teddy Chesbrough introduced his old pa. As Ted is partly Scotch at times, having originated in Connecticut, he pronounced it as if it were spelled "parr." His old Scotch relative was very warmly greeted but remained with us only a short period.

Midnight found most everyone in bed as Quebec was to be reached early Tuesday. Also the Prairie Flowers ran out of songs about that time. On reaching the Chateau the next morning it was discovered that Messrs. Cole and

"COME SEVEN!"

As usual the Little Boy was rolling them strong. You will note that Homer nearly lost his head.



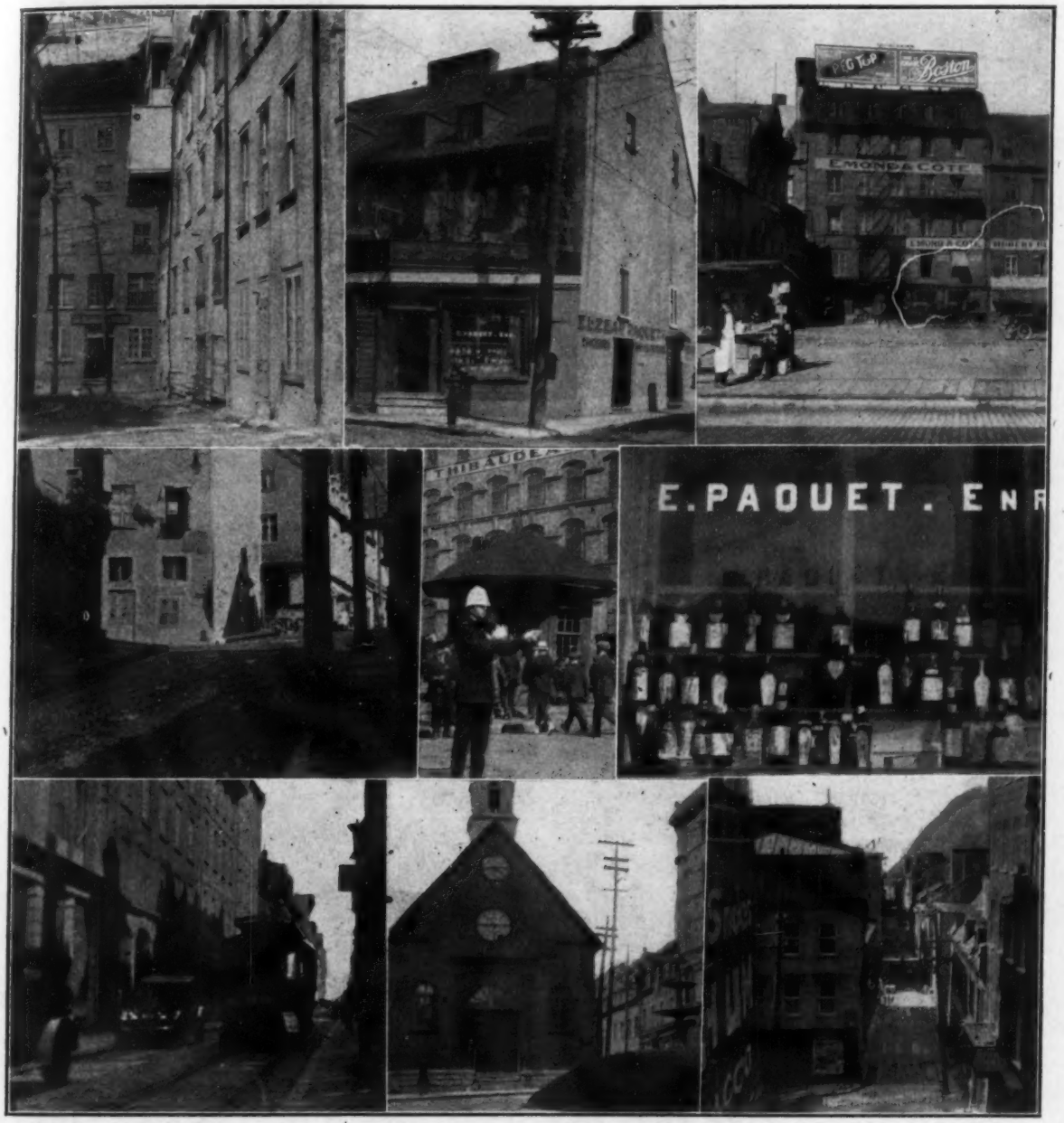
In Upper Quebec.

Left to Right. Top—One of the oldest houses in Upper Quebec. A Vista in a city park. Center—Champlain Monument, Frontenac Monument and St. Louis Gate. Bottom—Wolf's Cove from the Plains of Abraham, the South African Monument and St. Louis Barracks.

Mandeville had been there for several days. An unfair advantage I call it.

Mr. Cole looked somewhat haggard and tired, but I later learned that it was because of his strenuous efforts to awaken the chef and get the dining room open for breakfast. After the arrival of Fred Forster and Secretary Glenn, his labors were lightened by two-thirds and he resumed a more normal appearance.

The Chateau is a wonderful place. In spite of its great size, it has a home-like air that is seldom found in a large hostelry. From an American standpoint, with the exception of the elevators, the service is perfect, and even the elevator system is conducive of healthful exercise. Take my own case, for example, I had a room on the sixth floor. Starting from the office in the main lobby I would wander down a long curving corridor about a half a mile, by the writing room and the beauty parlor and all the other attractions and finally reach an elevator. In due course of time the elevator would arrive, take me aboard and lift me up two floors. Here I was given a transfer, or at least told to get out and walk two blocks to the right and down a flight of stairs. There I found a second elevator that in due time reached the sixth floor. This system prevented the remark so frequently heard in other places about "running up to the room a minute." One didn't. If one ran up to the room it took nearer twenty



QUAINT CORNERS IN OLD QUEBEC.

Scenes in the Lower City that are truly typical. The traffic policeman in the center is pointing the proper direction. It's a habit with him. At the bottom left is a view of St. Peter street where many of the banks, and the express and telegraph companies are located. At the bottom center is the oldest church in Quebec and where the little park in front is now located, the stocks used to stand and slaves were once brought here for branding, cropping of ears and other punishment. At the bottom right is a typical street scene taken from the top of Break Neck steps.

minutes. Aside from this little idiosyncrasy the Chateau is a wonderful place in which to live. One lady said she always wanted to have a room where she could awake and look out upon the broad St. Lawrence before breakfast each morning. No, Bill, she isn't married—yet. Was you thinking of supplying the room?

Quebec grows on one. If you've never been there you should go. Having been there once, you'll go back. The scenery attracts. The climate invigorates. The service invites. The genial manager of the Chateau is always at your elbow with suggestion or advice and always in the interest of your pleasure and welfare. The Georgia cotton manufacturers are good pickers when it comes to convention places.

Tuesday was spent in cleaning up the stains of travel and wandering around the quaint corners of old Quebec. In the evening the convention proper opened with a banquet in the Empire Room of the Chateau of which I append the menu, leaving off all reference to those liquids whose names should only be whispered in the good old U. S. A.

Canape of Anchovies

Celery Salted Almonds

Mock Turtle

Lobster Cardinal

Braised Sweetbreads
Roast Spring Lamb, Mint Sauce
New Green Peas
Princess Potatoes
Tomatoes Surprise
Nesselrode Pudding Assorted Cakes
Demi Tasse

The room and the long tables were beautifully arranged and decorated with flags and flowers and in due course of time President Jewell, who acted as toastmaster, called upon all to rise in a toast to the President and to the King. He then called upon Hatton Lovejoy of La Grange to respond to the toast "Our Guests." Mr. Lovejoy responded by admitting without argument that the women of Georgia were beautiful. That the men of the United States were men of brain, men of action and men of courage. He pointed out the strong tie of blood between Canada and our own country and the common interest that kept an imaginary line thousands of miles long inviolate although unguarded. In conclusion he declared that more than a tie of blood bound the two nations, there was the spirit which animated the great woman whose monument graced the public square in New Orleans, Marguerite, the friend of the poor and needy; the spirit of reverence for women, the sense of true justice and fair treatment to all, and the deep feeling of real charity, these, he said, were the three rocks against which the waves of Bolshevism and Socialism were bound to break without leaving an impression.

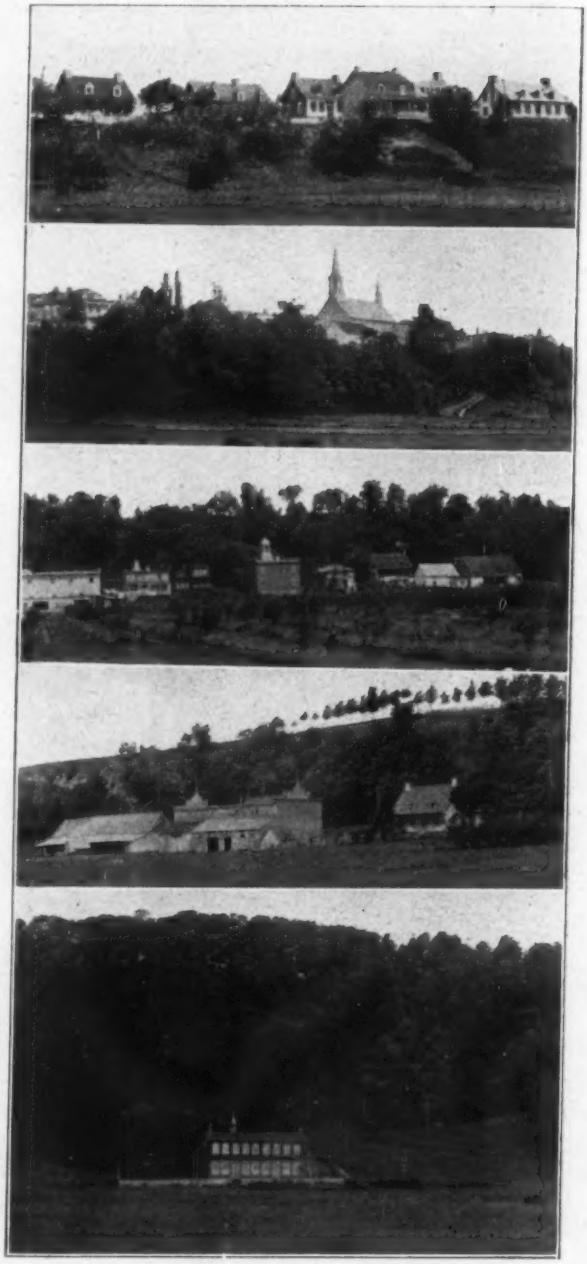
President Jewell then outlined briefly the history of the achievements of Sir Charles Blair Gordon, President of the Dominion Textile Co., and introduced him as the chief speaker of the evening.

Sir Charles Gordon, in reply to the chairman's remarks, said that it was rather hard for him to accept all the compliments and take upon his shoulders all the qualities mentioned by the chairman. He though it better not to dwell upon them and would not say anything about them. He did not know who had organized the congress of the cotton manufacturers, who was responsible for bringing them to the city of Quebec, but he could say that he was very much pleased that this city had been chosen.

Quebec sometimes got the name of being slow, he said, and it might have been true a long time ago, Quebec may have been slow right enough at one time, but times had changed and the improvement was very marked, so marked in fact that the province of Quebec today was one of the most prosperous and rich in the Dominion, the credit of the province of Quebec stood higher than that of any other of the provinces. This was due mostly to the great character of the people. They were not "fly by night" but industrious and saving, willing to work and produce, to assume their share of the burdens and obligations of present day life.

There certainly were some attractions in Quebec to induce the tourist and visitor to spend a short few days in the old city. Quebec was full of historic souvenirs and memories and when its name was mentioned it immediately brought back to memory the names of some of the greatest men in the early history of the American continent.

Sir Charles then gave a very brief sketch of the lives and activities of Cartier, Samuel de Champlain, Maisonneuve, Montcalm, and Montmoreney and drew his hearers' attention to the fact that it was from the Province of Quebec that La Salle had sailed on his voyage of discovery that led to the Mississippi. But, he continued, he would not dwell too long upon the history of the province and city of Quebec, there were many other subjects that could be treated. He could speak about the great and glorious part the Canadians took in the war, but the war was over and he was sure no one wished to hear much about its horrors and suffering. He might deal with the difficulties between labor and capital in many countries; he might, if he was a prophet or the son of a prophet, say who would be the next president of the United States, (this was greeted with cries of "Tell us who it is") he might even discuss prohibition but the people of the province of Quebec had clearly indicated that they were entirely opposed to prohibition and did not believe in it. (Cries of "Hurrah for Quebec," "Good old Quebec.") Sir Charles continued by saying that he would be willing to go to



CAUGHT FROM THE TRAIN EN ROUTE TO ST. ANNE

AT MONTMORENCY FALLS.

Left to Right. Top—Homer Orvis at the top of the falls. The Falls from the Railroad; a sheet of water 274 feet high. Bottom—The Montmorency Mills of the Dominion Textile Company and the Portico of the Kent House.

Georgia and pay taxes and even supertaxes, if all the ladies there were as goodlooking as those who were present at the banquet.

There were, however, more serious matters to be dealt with, said the speaker, and he wished to say a few words about the financial situation in relation to the cotton business.

There were very few people, said Sir Charles, who realized what the aftermath of the war really means. There was an aftermath, and it was of tremendous importance to look into the present situation and to face it. The late war had been the greatest of its kind in the whole history of the world. The Napoleonic wars were mere child's play in comparison with the gigantic struggle and yet all knew those wars had had a tremendous effect upon business and commerce in all parts of the world. The aftermath of the Napoleonic wars was nothing, however, to compare with what had already and would for a long time yet, follow the world wide war. It was just as well to be properly prepared for what was due to come in the near future.

Prices of foods and other necessities, prices of all manufactured goods had increased in a tremendous proportion and were still growing, but that could not continue forever in spite of what some people seemed to imagine.

There was a great deal of prosperity at present for some but it was not altogether general, all did not enjoy that prosperity. There was a class the speaker need not mention who did not enjoy or benefit by that prosperity.

Cotton manufacturers were not in a class by themselves in making profits, declared the speaker, but they can't go on making them forever. The existing conditions were the result of the war, and one of the most dangerous of them was the inflation of credit, which was also a direct result of the war.

The very morning after war had been declared hundreds of thousands of men were suddenly taken away from productive industries. Somebody had to feed, clothe and keep these men and the burden fell upon the balance of the people in the countries affected. This necessarily meant inflation in every direction. Higher wages had to be paid in order to get the work done and the people had to be called upon to bear a larger portion of the new burden of war. As a result there was still a further demand for higher wages and this naturally resulted in higher prices for all kinds of goods. This was the beginning of the inflation.

Banks had been obliged to follow the lead set by both the employers, the workers and the manufacturers and dealers, they became a party to the already existing inflation and were even compelled to add to it the third agency, the rise in credits.

Rises in all kinds of goods can only last as long as the credit, the currency system of Great Britain, the heart of the financial world, should last. If credit was to be increased in proportion to the continued increase in wages, there was sure to be a tremendous crash. In order to prevent the dangerous pyramiding, the United States Federal Reserve Board had wisely decided not to continue any further discounting of paper. The Bank of England had followed the lead, and Canada must do likewise. The Dominion Government intended to restrict credit and it was high time that something was done. The time had come when inflation of credit must be put a stop to if a disaster was to be averted. Sir Charles said he did not wish to appear a pessimist, he did not wish to predict a diminution in business, but large institutions of all kinds saw the danger ahead and were applying the brakes. It behooved every one, the cotton manufacturers as well as the others, to take due notice of what was going on and govern themselves accordingly.

At the conclusion of these remarks President Jewell announced the appointment of some committees and then

AFTER LUNCHEON AT THE KENT HOUSE. MESSRS. HARRIS AND DORN READY TO LEAVE FOR THE TRAIN.

introduced Sandy MacGregor in some Scotch dialect and character songs.

The next speaker to be called upon was W. B. Lannigan, freight traffic manager of the C. P. R. The first part of his remarks were in a humorous vein, straying later into history and statistics.

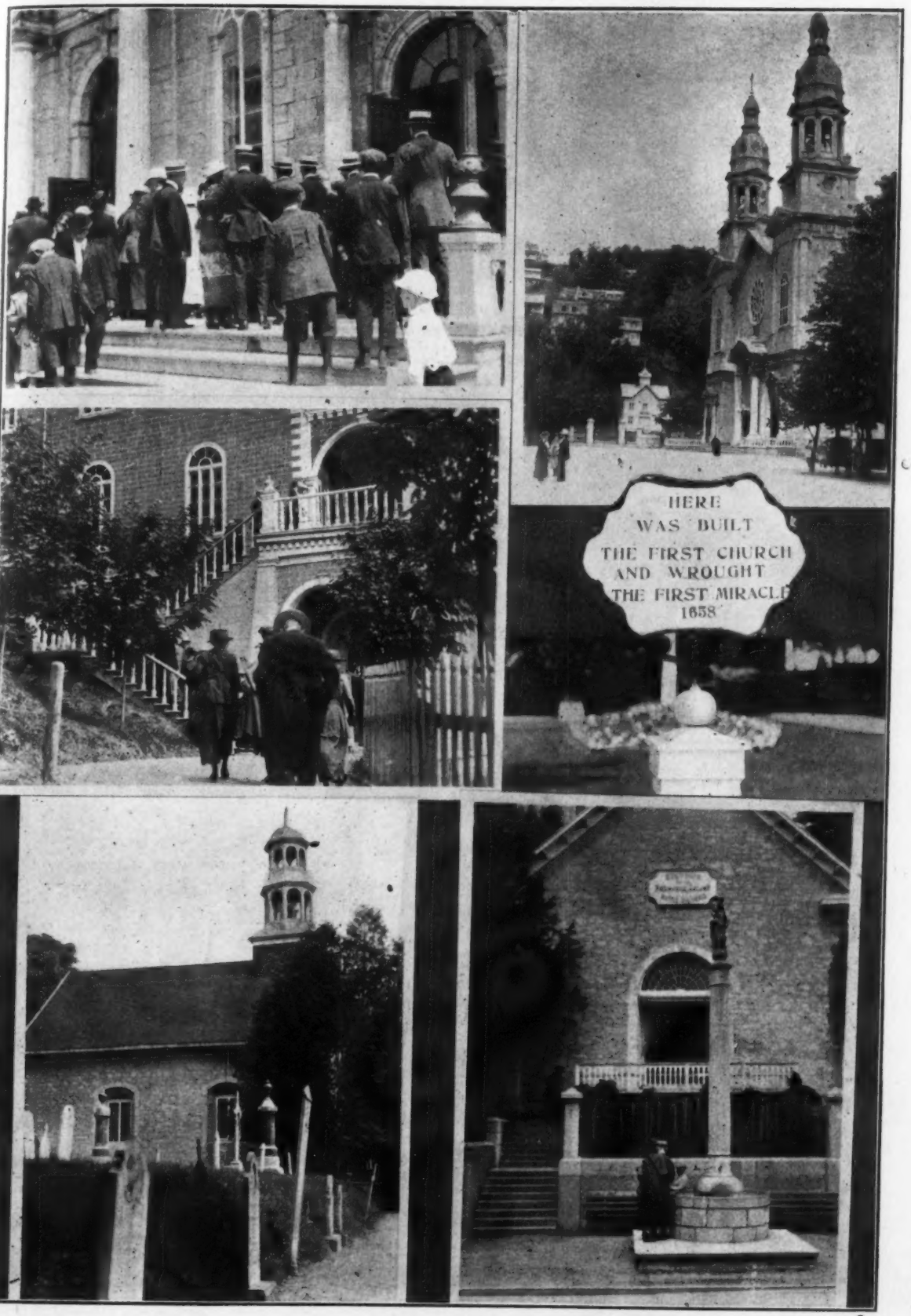
Again Sandy took the floor attired as a French sailor and sang "There's Somebody Waiting for Me," He then announced that at 9 o'clock the following morning Harry Roberts would eat his hat in the main lobby of the Chateau, "Speedy" Seal to act as referee. Sandy also told of his work among the disabled Canadian soldiers and led the diners in a number of songs and choroses.

Praise be! That job's done. You know, Bill, I never did like to report a wet banquet. I always succeed in getting a book full of notes but when I begin to write it up, they somehow seem to lack connectivity. In the old days I could go around the corner to Mike's place and get a couple and then the notes would sort of liquidate and flow together, as it were, but in these days the only moisture we have is perspiration, and if you don't believe I've used it, just look at my collar. Writing up a wet banquet two weeks later and in Georgia is a *ne plus ultra* job. If you don't know what this means, Bill, you just ask me and I'll tell you it's perfection described by a word of four letters beginning with H. If I was even fifty per cent Scotch or if some one would send me some orange blossoms, I might make out what these notes mean. Anyway, I gather that about this time Father Jewell called on Major Fred B. Gordon to reminisce. Reminiscing is one of the best things Maj. Fred does. He gets full of 'em and sort of overflows. Well, the major, he got up and began to tell us about some of his ancestors, Gen. John B. Gordon and some other more or less minor Gordons, and this mixed us all up. With three Gordons on the menu we were already seeing double and Maj. Fred just made it worse. After the Scotch Sandy had been passing out, this ancestor stuff was a facer. Anyway we learned that Fred got his title of Major in a poker game, in other words he won it. Next to craps, poker is a great game. Let's see, where were we—oh, yes! Maj. Fred began by calling us profiteers. I don't see why he should as we hadn't been in any poker game with him. He said in the old days bank cashiers with their books out of balance always went to Canada if they got a long enough start. That was kind of a mean thing to say, as while we had some few bankers amongst us, the worst most of us had done was shoot craps. Then he got to telling bible stories about Joshua who made the moon shine so the Philistines wouldn't have to drink out of the Red Sea or some place and finally concluded by wishing Brother J. D. Massey were with us as he could tell stories all night. Brother Massey must be an earnest bible student. Also, evidently, his books are in balance as he failed to be among those present.

Maj. Fred might have told us some more stories but Dr. Coleman, Bill Arnold and the rest of the quartet were so full of song that they insisted on being heard and were heard. They sang a song about chickens. Their minds seemed to run in that general direction. So we had to listen to several verses on the chicken question. I counted sixteen, but as the adding machine wasn't working perfectly I wasn't quite sure.

When the last chicken had been dressed, we adjourned to the Palm Room in the basement where the noise wouldn't disturb the other boarders and cleared the floor for dancing. Then it transpired that the orchestra couldn't jazz properly, so all but the violinist were canned and Peggy was installed at the piano with the violinist vamping and Al Matthews playing the traps and directing. One thing is certain, Al Matthews' jazz band will go down in history as a music producer that would make anyone dance. Rogers Davis disclaimed all knowledge in that direction but admitted that he could dance by that music. The Callaway boys and the Gordon twins kept steadily at it, while many others joined from time to time. Lechler and Chears aided in keeping the traffic moving and everyone had so enjoyable a time that the first thing we knew it was 1:30 a. m. and the elevators were all stopped. Then began a search for stairways down long dimly lighted halls, and later, quite some later, everyone had found his temporary home and retired.

Bill, I don't know how to begin the Wednesday story. I awoke early. I couldn't do otherwise as my roommate



ST. ANNE DE BEAUPRE.

Left to Right. Top—Georgia "Pilgrims" entering the sanctuary. The Church and its environs. Center—Entering the Scala Sancta. The stones show where the first church was built. Bottom—The old Chapel and Cemetery. The fountain of St. Anne in front of the old Chapel.

imagined himself the gang boss over a squad of workmen breaking stone six stories below. Posting himself in the window he shouted orders until he was fully satisfied. Then we went to breakfast. Thanks to Mr. Cole, et. al., the chef was up and doing business.

We were to leave at 10 o'clock city time, which is two hours ahead of real time, for a trip to St. Anne de Beaupre and Montmorency Falls. Those who got up in time went with the party. The late sleepers caught the party at St. Anne and returned with them.

You know Fred Forster, Bill, well it looked for a time as if we should lose him. He stuck to Brother Bruno like the other fellow's chewing gum to the heel of your shoe. We all thought he was going to take the veil, but it's now my private opinion that he was trying to find where Brother Bruno kept the wine.

St. Anne de Beaupre, with its church and relics, is indeed an interesting place to the layman, but our time was limited and after looking at the sacred bone and purchasing souvenirs, we beat it back to the train and Sandy.

Montmorency Falls, with a sheer drop of 274 feet and a luncheon at the Kent House were the next objectives.

FRED FORSTER AND BROTHER BRUNO MAKING THEIR WAY TOWARD THE FOUNTAIN OF ST. ANNE.

While the volume of water is not great, the height is said to be 100 feet greater than Niagara. Power is developed from these falls to operate the Montmorency Mills of the Dominion Textile Co., and also to furnish light and power to Quebec and its street railway.

Debarking from the train, an elevator is boarded that lifts one 276 feet up the face of the cliff and from this point it's only a short walk to the Kent House, which has a romantic history. It was built by Gen. Fred Haldimand and in 1791 was bought by the Duke of Kent. The old ball room and banquet hall have been preserved intact and after luncheon and a visit to the falls, many of the party repaired to the ball room to dance in these time honored and historic environs. We then returned to Quebec through one of the afternoon showers that seem to be a rather frequent occurence in that section. Sandy led in the singing.

That night we had our final meeting in conjunction with a complementary smoker. President Jewell again acted as toastmaster. In order to spare your feelings I omit the menu.

Hon. Frank Carrol of the Quebec Telegram was the first speaker. The Hon. Frank told us the history of Canada, the history of Quebec, the biography of many of the people connected therewith, and finally the number of children to be expected in Canadian families. According to Hon. Frank the way they determine the number of years a man has been married is to count his children and add one year. This method is highly recommended to those seeking income tax exemptions. Most of the Georgia men had never thought of it in exactly that light.

At the close of Mr. Carrol's remarks Major General Sir David Watson, commander of the Canadian overseas forces, gave some anecdotes from his experiences at the front.

He was followed by Col. George H. Ham of the C. P. R., who made a semi-humorous talk well suited to the occasion.

C. Armond Carroll then made an appeal for financial assistance for Sandy MacGregor and his work and Secretary Glenn passed the hat. Sandy then repeated by request his song of the preious evening entitled "Trixie from Dixie."

The meeting then went into executive session. President Jewell made a few remarks and Secretary Glenn announced that his report would be mailed to all members.

Maj. Fred Gordon then read the report of the committee on nominations and the following officers were elected for the ensuing year:

President—John A. Mandeville of Carrollton.
1st Vice-Pres.—Cason J. Callaway of La Grange.
2nd Vice-Pres.—M. F. Cole of Newnan.
3rd Vice-Pres.—J. D. Massey of Columbus.

After seven years of faithful service and successful managing, Secretary and Treasurer Platt E. Glenn positively declined re-election, although he was strongly urged by the entire membership. It was voted that the new secretary be selected by the Executive Committee.

President-elect Mandeville was then escorted to the chair by Messrs. Cole and Fargo, where he accepted his honors and duties in a happy speech in four languages. (Applause.)

The resolutions committee, through Chairman Lovejoy, recommended that compulsory school attendance of eight hours weekly for boys and girls between 14 and 15 years be established, that part time schools be organized when warranted, that mills represented agree to employ boys and girls 14 to 16 years of age only a half a day and to have the law so changed that they can employ boys and girls aged 14 whether they have attended school previous years or not, provided that they attend part time school.

A second resolution recommended the institution of a school of technology, favored the raising of $2,500,000 or more for equipment and maintenance, and urged that members of the association contribute $500,000 for the textile department. This was referred to the new Executive Committee.

A third resolution thanked the officials of the association, the Canadian Pacific Co., and others who had helped to make the convention a success.

The report of the Traffic Manager would be mailed to members, it was announced.

Cason J. Callaway then addressed the members on "Helpful Hints Regarding Help" during which he advised mill owners when they had trouble with labor demanding more wages, to look at the matter from the viewpoint of

labor. If they did that, they would find that labor was not satisfied because it is not human to be satisfied. Manufacturers were not satisfied no matter how much they made. He said he believed in giving labor something to look forward to every six months or at stated intervals. There were two incentives to work, "fear" and "hope" of reward," he contended. Fear would accomplish nothing with the help in Georgia, because they could quit their jobs and get as good or better anywhere they liked to go. Consequently, the only incentive left was the hope of reward, and he urged that that stimulus be adopted.

He urged upon the mill men the great necessity of not passing the buck. There was altogether too much of this, he argued, and every man should ask himself honestly, "Do we pass the buck in our mills?"

Mr. Callaway believed in having a man whose duty it was to meet new operatives and look after their needs. Tell them on the day of their arrival where and how to buy wood and coal and other supplies, and advise and aid the operative in every way possible. Such efforts, he believed, were thoroughly appreciated and led to more contented labor.

Telegrams were read from W. J. Vereen and Marse Henry Salmon and final adjournment was taken.

Was it some big convention? I'll say it was.

The cut below depicts Secretary Glenn and the writer taking a joy ride in Quebec. The spotted dog is not ours.

A shaft coupling that can be slipped over a fracture in a shaft in a few minutes time, restoring the shaft to an operating condition, should save hours and perhaps days required in replacing the broken shaft with a new one. This is the claim made for the Bull Dog coupling, "the coupling without a bolt." These couplings are received ready for use and it is stated that the bare hands are the only "tools" needed to apply them. This should mean insurance against a break-down. Stanley Belting Corporation, 32-40 S. Clinton St., Chicago, have been appointed special distributors for the Bull Dog line shaft couplings and also for this type of collar, "the collar without a screw," and carry in stock an assortment of sizes for immediate delivery.

INTERNATIONAL COMPARISONS OF PRICES OF COTTON CLOTH JANUARY, 1919-MARCH, 1920.

This is a bulletin which has just been published by the Bureau of Business Research of Harvard University, Cambridge, Mass., the purpose of which, as indicated by the title, is to show the relative course of prices of standard cotton cloth in some of the markets of the United States, England, India and China between the dates named. It is a continuation of the plan that was started last year by the Research Committee of the National Council of Cotton Manufacturers. Copies of this bulletin, the price of which is $1.00 each, may be secured either through COTTON or direct from the Bureau at Cambridge.

Committee Appointments.

President J. A. Mandeville of the Cotton Manufacturers Association of Georgia has announced the following committee appointments for the ensuing year:

PAST PRESIDENTS.
(Ex-officio members all committees.)

B. S. Walker, Monroe	F. B. Gordon Columbus
Dr. Jeff Davis, Toccoa	A. F. Johnson, Greensboro, N. C.
W. J. Vereen, Moultrie	R. C. Freeman, West Point
D. A. Jewell, Chickamauga	

VICE-PRESIDENTS.
(Ex-officio members all committees.)

Cason J. Callaway, La Grange	M. F. Cole, Newnan
J. D. Massey, Columbus	

AUDITING COMMITTEE.

Vaughn Nixon, Chr., Atlanta	H. O. Ball, Jackson
George A. Bates, Palmetto	

COAL COMMITTEE.

T. J. Callaway, Chr., Conyers	M. M. Bryan, Jefferson
C. W. Chears, Chattanooga	J. A. Lechler, Atlanta
L. L. Jones, Canton	

COTTON COMMITTEE.

R. C. Freeman, Chr., West Point	J. D. Comer, Macon
D. A. Jewell, Chickamauga	C. V. Truitt, La Grange

EDUCATIONAL COMMITTEE.

Charles Adamson, Chr., Cedartown	Garnett Andrews, Rossville
W. D. Coleman, La Grange	George S. Harris, Atlanta
M. E. Geer, Douglasville	Miss Dozier, Gainesville
George H. Lanier, West Point	Allen Little, Griffin
H. P. Meikleham, Lindale	A. T. Matthews, Thomaston
J. D. Massey, Columbus	Mrs. Taylor, Macon
John F. Tibbetts, Athens	

EXECUTIVE COMMITTEE.

Allen Little, Chr., Griffin	W. D. Anderson, Macon
S. Y. Austin, La Grange	D. W. Anderson, Gainesville
W. D. Couch, Atlanta	T. J. Callaway, Milstead
J. H. Cheatham, Griffin	J. S. Dunson, La Grange
F. S. Ethridge, Atlanta	J. C. Fargo, Augusta
M. E. Geer, Douglasville	George S. Harris, Atlanta
George W. Hamilton, Dalton	R. T. Jones, Canton
L. Lanier, West Point	C. E. McLin, Rome
J. W. Mortan, Athens	J. A. Miller, Atco
H. W. Salmon, Chattahoochee	C. J. Swift, Columbus
J. D. Taylor, Summerville	H. L. Williams, Columbus
C. M. Walker, Monroe	

INSURANCE COMMITTEE.

J. H. Cheatham, Chr., Hartwell	W. G. Nichols, Griffin
M. M. Trotti, Manchester	(Two to be appointed.)

LEGISLATIVE COMMITTEE.

Lee Jordan, Chr., Atlanta	Garnett Andrews, Rossville
W. N. Banks, Grantville	J. A. Baugh, La Grange
B. R. Blakely, Griffin	C. B. Caperton, Trion
W. A. Enloe, La Fayette	L. F. Edwards, Athens
M. C. Foster, Dalton	R. M. Harris, Hampton
R. E. Hightower, Thomaston	R. B. Hubbard, Newnan
A. L. Jackson, Tallapoosa	P. M. Kimble, Poulan
Hatton Lovejoy, La Grange	J. W. Newton, Forsyth
G. B. Scott, Scottdale	B. E. Willingham, Macon
Baynard Willingham, Egan	J. M. Williams, Winder

TARIFF COMMITTEE.

F. B. Gordon, Chr., Columbus	W. D. Anderson, Macon
Fuller E. Callaway, La Grange	Sam. A. Carter, Atlanta
A. F. Johnson, Greensboro, N. C.	George H. Lanier, West Point
H. P. Meikleham, Lindale	E. W. Swift, Columbus
John F. Tibbetts, Athens	

TRAFFIC COMMITTEE.

H. P. Meikleham, Chr., Lindale	(Four to be appointed.)

N. H. Lane of Bosson & Lane, Atlantic, Mass., has closed out his interest in this firm to E. P. Bosson, and retired after 44 years in the chemical business.

In the line of castor oil products in which this firm has specialized, Mr. Lane was a pioneer; probably the first man in the United States to manufacture turkey red oil—alizarine assistant—on a commercial scale. Away back in 1876 he served the Walpole Dye & Chemical Co., as superintendent for four years, and for fifteen years acted in a like capacity for Johnson & Shaw. For more than twenty-five years he has been associated with Mr. Bosson who will continue the business as formerly, assuming all the liabilities and taking over all the assets of the firm.

The Waterhouse Welding Company, Boston (18) Mass., have just completed a new catalog of oxy-acetylene cutting and welding equipment, supplies and accessories. This catalog is made with an adjustable cover so that bulletins issued from time to time may be inserted in their proper order.

Democracy as Applied to Industry*

BY G. W. DYER.†

Democracy as applied to industry is, I think, the most important question for men to consider at this time. Democracy is a very much broader conception than perhaps many of us think. As a rule, when we hear "Democracy" mentioned, or when we think of "Democracy," we think of it in its political aspects. American Democracy is a rule of life, a theory of life, industrially as well as politically, religiously, and socially. The men, who laid the foundations of American Democracy were really very great men, far-seeing men, and they considered very thoroughly all these questions.

Up to a comparatively short while ago we were an agricultural people. We never thought much of problems, any problems except political problems, because in the very nature of the case in America there never were any serious problems connected with agriculture, any industrial problems. The thing settled itself largely, but now we have become an industrial people. Fifty million people are in towns and cities, in factories and on the railroads, and the chief problems are not political, but industrial.

Thus far we have not adjusted ourselves to this new order, and I think most of the trouble we are having today—and we are in a chaotic state, from an industrial point of view—comes from trying to confuse Socialism with American Democracy. Why? In the first place, I think it is due to the fact that there are a number of people in this country, men who are in responsible positions, who are half Socialist. Others are time-servants. They all will advocate anything that will get and keep them in these jobs. But perhaps the chief reason is that political leaders in America, a great many of them, don't know what American Democracy is as applied to industry. As I look upon Washington to day, it is a pathetic situation to me. Our early problems were political problems. We had great statesmen then, who were masters of political situations, and political problems, but we have since ceased to have solely political problems; we now have industrial problems, and the men we have at Washington are not able to cope with the situation; they don't know what to do.

One reason for this is that the so-called leading citizens of this country in the last quarter of a century have shelved their political responsibility and paid very little attention to it, and we have allowed men of small calibre to represent us. The big men of the country we have not sent there as a rule. Since the war closed President Wilson has been sick, and the rest of the Democrats might as well have been sick. We would have gotten along just as well if they had been sick. Look at the Republicans; it is not much better. They told us what they were going to do if they got in. They have been in two years; what have they done?

The time has come when people of this country must think, consider a serious situation and define for themselves, and for the American people, what American Democracy means as applied to industry. Now what are a few of the characteristics of American Democracy as applied to industry? In the first place, one of the fundamental things is freedom, liberty of the individual. That was fundamental in laying the foundation of this Government, that every man should be free, free to work where he pleased, free to do anything that he pleased, free to go anywhere he wanted to go. That is fundamental. But they knew that a great many men would make foolish mistakes if this freedom was given. They knew if every man was free to practice medicine, or to practice law, or to teach school, all sorts of blunders would be made. The mistakes would be enormous and costly, but whatever the cost, above everything the American system is freedom, free to go and come, free to work when and where we please; that's fundamental. However, they arranged in giving this tremendous freedom to the individual that he should use it up to his limit, and his limit would be when his freedom interfered with the freedom of other men, but he could do anything he pleased as long as he did not interfere with the freedom of other men.

They depended on two great economic laws to regulate political economy, the law of supply and demand, and the law of competition. They felt that an independent people regulated by the law of supply and demand would so adjust themselves that too many men would not go into one department of work, because, if too many men went in, it would bring competition down. That would be a warning that you should go elsewhere, and, if the American had intelligence to take the warning and adjust himself thereto, the industries of the country would be kept regulated under the law of supply and demand, and each man would receive compensation in proportion to what he did.

That was their theory of regulation up to that point. Their theory of government was very different perhaps, certainly very different from the Socialist's theory of government. Their theory of government was their belief that the government should keep hands off of the individual. They believed that the Government should regulate industry only to the extent of seeing that there was fair play, and that every man had the right to buy, sell, and work. The Government was simply to act as a referee, and simply see to it that every man should enjoy this freedom without restraint or restriction from any man or group of men. When they tried to have the Government to do otherwise, it would say "No; every man has got to have a chance." Now briefly speaking, that is an outline of what American Democracy stands for as applied to industry.

Socialism is just the opposite. Socialism is fundamentally opposed to the freedom of the individual in industry at all. Socialism does not agree that any man should contract for his own work, but on the other hand contends that everybody should be an employee of the State, and the State direct his activities. Socialism does not believe in the law of supply and demand as a regulator of men's work. It is utterly opposed to competition, and the Socialists believe that the Government should not be a referee, but that the Government should come in and take charge, and direct the industrial life of the whole country.

*Extracts from an address before the Georgia Manufacturers' Association.

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Socialism and Democracy are antagonistic to each other at every single point, and there is no possible fusion of the two; it is a fight to the death. Whenever you try to fuse Socialism and Democracy, you must inevitably have confusion just as we have got today, and we are never going to work out until we seperate them. That railroad bill passed a few years ago called the eight hour law, was simply a law to regulate wages. That's Socialism through and through. American Democracy knows nothing of a law to regulate wages. That is Socialism. American Democracy depends on something entirely and fundamentally different to regulate wages, and, when you regulate wages by law, you not only adopt a Socialistic principle, but you strike a death blow at American Democracy.

Another thing that has become very popular is what we call the minimum wage law. I don't know whether it has been agitated here or not. That is another method of regulating wages by law which is Socialistic in principle. It is proposed for the State to come in now and regulate it. It is proposed that, if there are a great many people receiving wages below what is necessary to keep them in decent living, we will fix this by law. It is marvelous how much faith the Americans have in law. A great many of these good people say "We will remedy all this, and say that no manufacturer shall pay any girl or man less than enough to keep her or him in decency". So, if the wage is $12.00 a week for a girl, they would say that no man can pay a girl less than 12.00 a week. That seems to settle the whole problem to their minds. The trouble with a great many people is that they don't know the elementary laws of economics. There is quite as much difference in the quality of labor as there is in the quality of eggs. I heard of an honest groceryman, who advertised his eggs in a very remarkable way. He put out this sign: "Fresh country eggs, 35 cents a dozen; good eggs, 30 cents a dozen; eggs, 20 cents a dozen." So there are girls, that are not worth more than $6.00 a week; they cannot produce more; some cannot do that. There are girls, that can produce $7.00 or $8.00 and no more; there are girls, that can produce $9.00 and no more. If you pass a law, that would prohibit any employer to employ any girl for less than $12.00 a week, the natural consequence is that the girls, that can produce $9.00, would not get anything. That is one of those Socialistic conditions that come in under the doctrine of Socialism.

Another one I want to mention. It seems that all our leaders, all authorities at Washington have accepted it. It is that every occupation shall pay a compensation sufficient to enable the employees to live decently. The point I want cleared up is, what is a decent living? It has been accepted as a proper basis on which to work out a wage scale. When the coal strike came up that was what was discussed. If their conpensation was not sufficient to give them a decent living, then by some sort of foolish law it should be brought up to that point. The theory back of it is that every workman in every occupation must in some way be guaranteed by some sort of compulsion a decent living. That is pure Socialism. American Democracy does not guarantee any man anything. It never has. It is contrary to the theory to guarantee anybody anything. If we adopt the principle that by law or compulsion you are going to regulate wages on that basis, you are striking a death blow to our whole machinery, that the fathers counted on to regulate the whole question.

American Democracy was not adopted for a lot of weaklings and molly coddles, people who needed a nursing bottle and somebody to look after them. The founders of American Democracy believed that the American citizen could take care of himself; that he had intelligence and character enough to take care of himself and direct his own activities if protected by the Government from any undue imposition that might come. Along this line labor unions —I believe there is a legitimate field for labor unions, but I don't think they are working much in that field now— have adopted two things, as I see it, that are fundamentally antagonistic to our whole theory of government. They are what is known as the closed shop and the strike.

It is rather remarkable to me that people have put up with the closed shop policy in this country as long as they have, men who claim to be Americans. The very fundamental idea in American Democracy was the freedom of the individual. There is not much in that but freedom to live and work where we please, quit when we please, and go where we please without restriction or restraint. That was fundamental in American Democracy. I was born in the county where Patrick Henry lived in later life. I remember as school boys we have repeated up there in Virginia those remarkable words of Patrick Henry "Give me Liberty or give me Death." When Patrick Henry said "Give me Liberty or give me Death," he was enjoying that freedom, those inalienable rights guaranteed the American citizen to direct his own life without let or hindrance from the outside.

What is the closed shop policy? That a group of men in this country, a minority of employees, because organized labor constitutes not over one-third of the working people in this country, adopt a policy to drive out from the place of an employer anyone who does not subscribe to their views who wants to work there, and they come to the employer, and they say "you have no right to hire this man. You have got to get an O. K. before you can employ that man, and, when we tell you to discharge a man, you have got to do it." So much so is it that they go into your factory, and say to even one of their own brothers, if he does not keep the rules and pay his dues, that he shall be discharged, and they go to the employer's office, and they say "we cannot work with him," and they say to this intelligent respectable American (think of it, in America) that "he cannot stay in your employ; he is a scab; drive him out."

Suppose the churches had such a rule. Suppose they were to adopt a rule, that a fellow was a scab who didn't come into the church, and that church men would not work under the same rules with non-church men. You would get your gun, and rise in your wrath and go after them. Our submitting to this policy, our submitting to a minority group of workmen dictating to us, dictating to you, dictating to this country, is fundamentally opposed to American freedom and American Democracy.

Now the strike. We have to think about strikes now whether we want to or not. We may not understand the strike unless we understand the fundamental change that has taken place in human society in the last hundred years. Human society did not change much for two thousand

years. It was not until the industrial revolution that there came a change, and it was a revolution indeed. Up to a short while ago, here in the South, in fact in all America, we were an agricultural people. Every community was self sustaining. The community practically produced all it consumed. It was almost independent of the outside world. Almost every home was self sustaining, and any disorder among people outside didn't affect that community much.

All that has changed now. Society has changed fundamentally. No community is self sustaining and society has become what we call an organism. The highest organism known in the world is the human body. It is a wonderful piece of machinery highly specialized. You have one organ performing one function; another organ performing another function. You have the arteries, which have their place, the lungs for breathing, the heart for pumping the blood, and the kidneys to perform their functions, and so on with all the organs of the body, but the life of the whole body is dependent upon each organ performing its function. Now, when the arteries strike, you know it is sort of serious. When your arteries strike, your whole body suffers. When the lungs strike, or when the heart strikes, that strike affects every organ, and the health of the whole body dependent upon the faithful performance of the function of that organ suffers by reason of that strike. Now what have we got? Society has been converted into an organism like that. We have a half a million people specialized on making shoes for the other hundred millions; we have another half a million specialized on making clothes, and we have got a thousand different groups, each group embracing a hundred thousand to a half million, each performing a specific function.

So it has come to this point, that no community is self sustaining, that no group is self sustaining; but that every group is dependent upon the faithful performance of every other group as a part of this organism. The whole body of society is sick when any one part of this organism ceases to function. We have gotten to the point where the strike ought not to be permitted. We ought not to think of permitting a strike under present conditions. It is a strange thing to me that men have been so slow to see it. We have come to this point that a small group of men can hold up one hundred million and make us compromise. A small group engaged in transportation can bring us all to our knees at any time they please. A small group that dig the coal can bring a hundred million of people to their knees, and force us to meet their demands at any time they please.

Fundamentally American Democracy was what we fought the Revolutionary War on, and we fought against irresponsible power. Sometimes it has been suggested that the American Government conferred as much power on the president as a king had. That was not inconsistent with their theory. The argument is that they believed that no man and no group of men in this government should exercise any power over society, who were not held strictly responsible to the public for the use of that power. Take it from the President of the United States down to Constable, and from United States Senator down to a member of the City Council, from Judge of the Supreme Court down to the Police Judge, there is not a man in America, who is not held responsible for the use of every bit of power he wields. There is not a man who may not be taken out when he abuses that power. That was fundamental. What have we now? We have the labor organizations of this country, comparatively a small group exercising power greater than the Government can exercise in many instances, and responsible to nobody, and no one to make them responsible. My friends, that was what we fought against. That is the reason we opposed Kings; that is the reason we opposed aristocracy, for we believed that no Government was safe with any group exercising power over all, who were not held responsible to the whole people. A strike formerly concerned employee and employer; it is no longer so. It is against the public. Why was the coal strike pulled off when it was? Because they knew that innocent women and helpless children couldn't stand the cold very long. It was a holdup game. The strike now is not against the employer, but fundamentally against the public. It is a reign of terror and frightfulness to compel the public to do things, whether they want to or not, without any recourse for holding the ones responsible who do it.

The strike under present conditions is not a weapon of civilization; it is a bludgeon of barbarism. It is the use of force to compel their theory against government. It seems to me that the best thing for the American people to do, if we ever bring order out of chaos, is to rise up and say that a conspiracy on the part of any group of men, whether employees or employers, to hold up the American people, shall be declared a felony, and ought to be stopped, and it must be stopped I think before we can ever restore order in this country.

The time has come when you men must come out, take your stand, and make a fight for American Democracy, or American Democracy is not going to stand. I don't mean a defensive fight; I mean an offensive fight. We are not here as capitalists, or as manufacturers, but as American citizens, and we demand that American shall stand true to American Democracy. Now it might be to your interest to yield at this point, and yield at that point on the closed shop, but, my friends, I never had any money, and never will have, but if I was the head of a factory, and was denied the privilege of running my own business, and if my affairs had to be dictated by somebody, I had rather plow a mule and enjoy freedom than to be run that way. It is going to lose you men something to take this stand, but an American citizen who puts his interests above his citizenship, is a mighty poor citizen.

The Sixth National Exposition of Chemical Industries is to be held in the Grand Central Palace, New York, September 20th to 25th, inclusive. As usual the program covers a wide field and the speakers are of national prominence. As in previous years moving pictures will play a large part in illustrating the methods used in many special industries and when in addition it is remembered that the big halls of the Grand Central Palace will be filled with countless exhibits of chemical machinery, equipment and materials, it will be fully realized that the show is to be well worth attending. Four floors are to be devoted to the exhibits and the meetings. During its five years of exhibitions the Chemical Show has grown into an educational institution of the first magnitude.

Industrial Democracy—Its Results*

BY H. R. FITZGERALD.†

At the beginning of this, your second year of Industrial Democracy, you are assembled today to definitely assume the responsibilities placed upon you, the members of the Senate by virtue of their relationship to the organization and of the House by the honorable choice of their constituents.

Under your plan no one is eligible as a member of either body who has not faithfully subscribed to the principles upon which your system is founded. It is not enough to have simply read the principles and signed the card; even a superficial glance reveals that the whole plan is based squarely upon the Golden Rule, and no sensible person can find anything in it to object to—but it requires more than this; the principles must be studied and thought over until they become indelibly impressed upon the mind and heart; we should each one pray for the constant guidance of our Heavenly Father that he may shape our lives in accordance with these principles; taking them one at a time, we should so concentrate upon them as to make sure that we faithfully practice them in all our relations with each other as well as with the great organization that we represent. No one has ever discovered a more just and profitable relationship between man and man, and no system has ever been devised which more completely assures to every one untold blessings of harmonious cooperation.

Without previous training and in most cases with comparatively little parliamentary experience, your predecessors assumed the task committed to them of introducing the new system into your organization; of formulating the Constitution and By-Laws and of adopting such rules of procedure as will assure the orderly working of the various phases of the plan. With very few exceptions they have applied themselves diligently, and in a spirit which has seldom been excelled in any plant they have achieved during the first year the following results:

1. A better mutual understanding and a far more harmonious relationship throughout the organization; every one who has been active in your councils has had the opportunity to learn more about the business than he ever knew before, in addition to which we have learned to know each other better and with less prejudice to view things from the other fellow's standpoint; we have made many valuable discoveries in fellowship and of qualities of mind and heart far exceeding our expectations.

2. There has been a material increase in the rate of production as compared with the standard month of June, 1919, and there has been some improvement in the quality of the goods as well as a slight decrease in the percentage of seconds. We were under no delusion that any system could in a short time develop the full scope of the science of cooperation, but we have made a very good beginning and we can now see more clearly than when we started that the principle is one which can go on and on to continuously higher standards of attainment. The results thus far have been highly encouraging and amply justify the prediction that our second year should be better than the first.

3. There has been a reduction in the labor turnover which, though it still remains at a higher percentage than it should be, has nevertheless contributed conspicuously to your savings.

4. You have earned and paid out during the year in Economy Dividends the handsome sum of $450,000, which, though of itself a very substantial result, is by no means the greatest of our blessings; instances are numerous of those who have caught the spirit of Industrial Democracy and have found in it greater happiness and satisfaction than they have ever known before, and it is needless to say that such persons are being transformed by this spirit into nobler and better souls.

5. You now have an excellent plan of Group Insurance which was a much needed safeguard to remove from the home of the industrial worker the dark menace hanging over it in the event of the invasion by the hand of death. In the few months that your plan has been in operation seven families have received protection in the total sum of $8,900.

6. Sixty-two laws have been enacted, the greater part of them having for their object the improvement of working conditions and better facilities of promoting efficiency throughout the plant. It is noteworthy that in all of the discussions pertaining to the various bills introduced there was a spirit of harmony and mutual respect, and there was evident a desire to be fair and to approach all questions in the light of the five principles. A careful survey of this work will, I think, reveal that no agency could have been devised that would have protected in larger measure the workers or brought them better concrete results.

We can, therefore, congratulate ourselves upon having made an auspicious beginning, and if we keep ever in view the high standard of our first Industrial Congress there is no alternative but to press on to still higher and greater efficiency.

Your first business will be to organize and equip your respective bodies with such officers and committees as are provided for under your By-Laws.

It has been said that people are best governed who are least governed, which is but another expression of the idea that laws should be as few and as simple as possible to attain the necessary ends. An age-old difficulty confronting every legislative body is the tendency to introduce new bills without adequate knowledge of the existing laws. Starting as you do with a clean calendar, permit me to suggest that your present need is not more laws but a better knowledge and application of those already enacted.

An agency should be provided to assure careful investigation of all bills offered before admitting them to your calendar, not only to avoid duplication or conflict with existing laws but also to test them squarely in the light of the five principles. No one should offer a bill unless in his candid and honest judgment it conforms to the principles and will aid in carrying them out; the author of a bill should also become its sponsor on the floor, and when it is introduced he should explain its object as well as the need for such a bill and bring out its points of merit for the full information and consideration of the House. If

*The annual address of Mr. Fitzgerald before the joint session of the Congress just elected.

†President and Treasurer of the Riverside and Dan River Cotton Mills.

the bill is then admitted to your calendar and referred to committee the said committee should have ample time in which to investigate and examine witnesses on both sides so that all of the facts pertaining to it may be brought out and carefully weighed before making their report back to the House. This would give the bill more publicity and its educational value would be thus enhanced, besides affording a better opportunity for expression upon it throughout the organization.

Every Representative and Senator becomes a teacher under Industrial Democracy; everything that we say as well as the tone and manner of saying it, the spirit in which we approach our work, and the careful regard for the interest and feelings of others, or, in other words, the way in which we live and act the principles and our loyalty to each other and to the Company, all have a most important influence upon the attitude of our associates.

Our greatest need at the present time is to learn to apply constructively the principle of Cooperation. Many of our people do not yet realize its scientific value; while they accept with some appreciation the benefits as represented by the Economy Dividend, there are a large number who have made no real effort to contribute to the best of their ability to the success of the plan. There are several departments in which a fine spirit prevails, and it is noteworthy that in these departments the labor turnover, absenteeism, saving of waste and rate of efficiency in production have shown tremendous improvement. There are other departments in which this spirit is lacking and it is due to this fact that the Economy Dividend has not reached a higher basis. Several instances have arisen where parties have been shirking their work and under the new conditions became ashamed of it and have voluntarily come to the overseer and acknowledged it; in another case seven persons on day work in a certain room admitted that they loafed a good part of the time and of their own accord suggested that four or possibly three good workers could keep the work up just as well. It is needless to say that for such leaks as these to be stopped adds very materially to the savings to say nothing of the satisfaction and joy that must come to any enlightened person who refuses to waste his or her time and is honorable enough to make an honest effort to stop these leaks. In a certain department where there had been considerable indifference to the rate of production a Representative made it a point to have a little heart to heart talk with several influential workers in the room, and pointed out to them how much better they would feel if their department was up to standard and what a good influence it would be to others if they would set the example and show what they could do; they accepted this suggestion in kindness and immediately went to work to bring about an improvement, and in less time than a month there was a vast difference in the rate of production in addition to which it has become one of the happiest and best departments in the plant.

Many instances of this kind could be cited and they make the heart glad because this kind of spirit invariably overcomes difficulties and brings happiness and prosperity to those who appreciate it. Just think what it will mean when all of our people in every department of your great plant catch this spirit and when every worker faithfully and honestly does his or her best to cooperate.

You will very soon have a weekly production report posted on the bulletin board of each department so that everyone can see exactly how the actual production compares with the normal standard; also, it is our purpose to post every four weeks the total production for each mill so that each department will know where it stands.

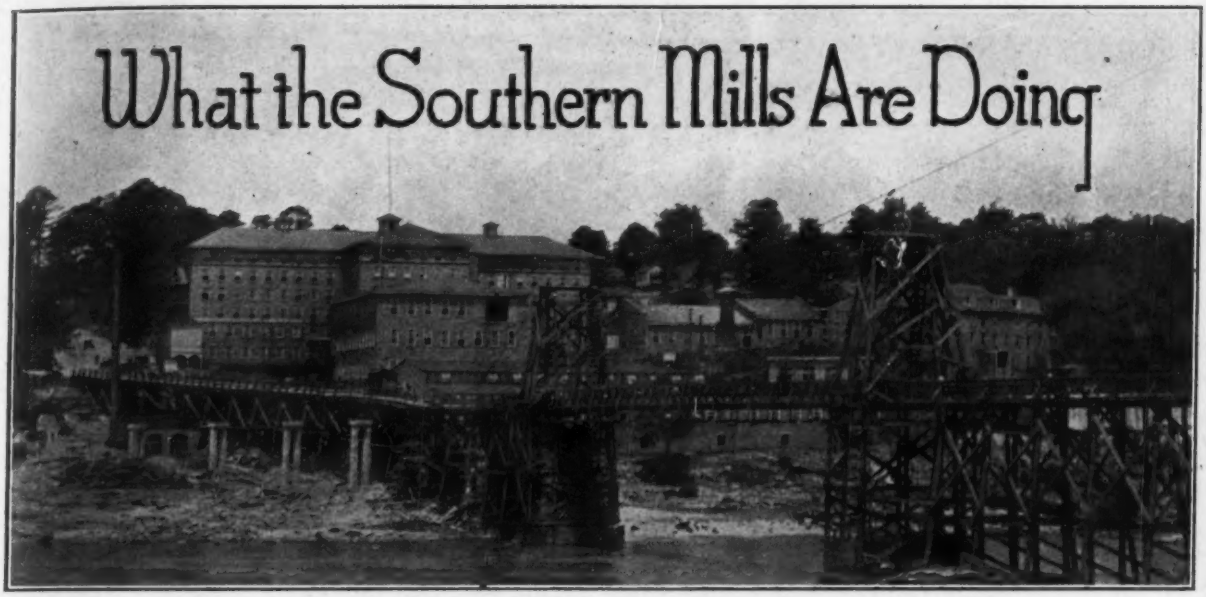
I would like to see both the Senate and the House discuss ways and means by which to bring all of our people to a more thorough understanding of the scientific value of cooperation. If every member were to prepare an address dealing with conditions in their respective departments and setting forth their best judgment as to how those conditions can be improved, I believe that it would prove a great help; these suggestions could be analyzed and tabulated, and if desired they could be gotten together and printed so that they could be circulated among the operatives; in any event, it would afford each member opportunity for interchange of ideas, which would have great educational value, and there is no doubt but that great good would result if the matter is carefully studied and if we employ the energy and judgment that we are capable of bringing to bear upon it.

Some plan should be devised to promote opportunities for more social intercourse among our people; in the atmosphere of informal social gatherings a better understanding and appreciation of each other almost always results, and I believe that this would help very materially in bringing about a better spirit of cooperation. While it is not practicable to bring all of them together at one time, except upon such occasions as your recent picnic, I think that a plan could be easily devised to take one department at a time or in cases where departments are small combine two or three so that the total number at any one time would not exceed the capacity for accommodation, and in this way you could rotate until within the scope of a year every department in the plant will have had opportunity for such gatherings.

May I also suggest that if any member of your honorable body has not read "The Story of Industrial Democracy" by Mr. John Leitch they make it a point to obtain a copy from the Secretary and read it at their earliest convenience; in fact, to read it through two or three times and make a study of it would be very helpful, as there are so many valuable suggestions in this little book that it is well nigh impossible for anyone to grasp them all at one reading.

It is very gratifying that many of our people have been practicing thrift and are saving their money to a greater extent than ever before. I cannot too strongly urge upon you the importance of using your influence to promote and encourage this practice in every way that you can. The markets of the world are unsettled and the tide has already started toward a lower basis, so that no one can tell just how soon readjustments (which every family sooner or later will have to face) may come. Those who are spending their money freely and foolishly and those who are losing time from their work will no doubt have occasion before very long to regret such thoughtlessness, and we ought in every way that we can to caution our people in their own interest to be thrifty and save their money for the great advantage it will be to them and their dependents.

What the Southern Mills Are Doing

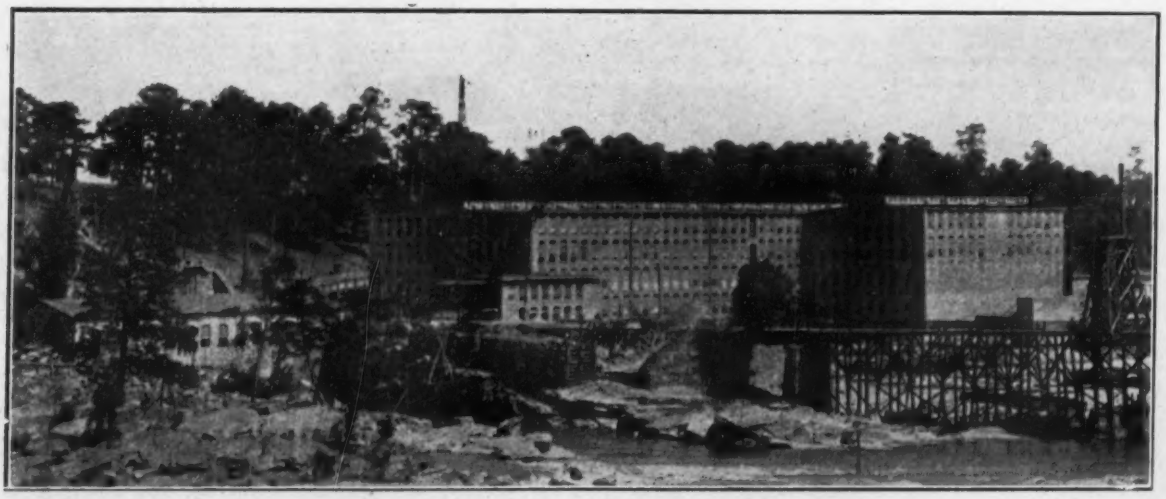


The No. 1 Mill at Tallassee Mills, Tallassee, Ala. The Small Building With the Tower at the Extreme Right is the Old Mill that was Built in 1844.

When you go to Tallassee be certain to carry a pair of ear-muffs. This was first suggested by Nina Wilcox Putnam in an article in the Saturday Evening Post and in connection with an entirely different city, but after a stay in Tallassee one can readily understand its application. The Terrentine House is a nice little hostelry where the lady in charge, who is a motherly little body, makes everyone feel instantly at home. However, the Terrentine poultry are of a special operatic breed that begin vocal practice early. Hence the need for ear-muffs.

Tallassee is rapidly recovering from the serious flood of December 9 of last year which carried away the dam of the Montgomery Light & Power Company and which washed out the steel bridge connecting the two mills at Tallassee as well as inflicting other damage around the property. As will be seen by the photograph a temporary wooden bridge structure has been erected and work is rapidly going on in building the re-inforced concrete foundation piers for a new standard weight steel railroad and highway bridge which has already been purchased and will doubtless be in position within a comparatively short period.

The first Tallassee mill, which was built in 1844 and which is the small building with the bell tower at the extreme right of one of the mill illustrations, was primarily located on the Tallapoosa River at this point because of the sharp drop in the river bed at these shoals and the adaptability of the natural formation for a water power development. The second mill was built on the same side of the river about 10 years later. The power house and new mill are located on the opposite side of the river and this new No. 2 mill is driven entirely by direct connected water power. Dynamos are being installed as well as additional water wheels which will allow the driving of the No. 1 mill by electric power when the plant is completed. The advantage of this proposition over the present direct water wheel drive at the No. 1 mill is the fact that a



A View of the No. 2 Mill and Power House From the Top of the Dam.

LEFT TO RIGHT, TOP—ONE OF THE SCHOOLHOUSES. A DISTANT VIEW OF THE DAM. THE CLUB-HOUSE.. BOTTOM ROW —ONE OF THE TEACHERS' DORMITORIES. A VIEW OF THE DAM FROM ONE OF THE GATE-HOUSES. THE NEW POWER HOUSE SHOWING DERRICK CRIB WORK IN THE FOREGROUND FOR THE NEW BRIDGE CONSTRUCTION.

fall of more than 60 feet is obtained at the new power house on the east side of the river as against about 32 feet fall on the west side of the river, allowing considerably more power to be developed with the same amount of water by the new method.

The Tallassee Mills make a large variety of products, their yarn numbers running from 2½s to 24s. They have an equipment of approximately 68,000 spindles and 1,200 looms.

An overhead trolley transfer across the river connects the two mills and the carrier platform transports three and four boxes of roving or other material at each trip. This device handles material that would keep a two-ton truck busy the entire day if ordinary methods of transportation were used.

Some recent changes in the mechanical equipment has given them considerable vacant space on the first floor of the No. 2 mill and arrangements are now being made to equip a complete cafeteria and lunch room that will seat 400 people. It is the intention of the management to serve only soup, coffee and desserts in this lunch room at first for the especial benefit of those who bring lunches to the mill, but if later developments indicate that there is a demand for an entire meal, efforts will be made to furnish it.

A Page woven wire fence has been purchased for the mill property but has not yet been erected. This and the completion of the bridge work now under construction will greatly improve the physical appearance of the property which has been disorganized because of the serious flood already mentioned.

The Tallassee Mills really have two villages, one on each side of the river. Because of this fact and for the sake of convenience, stores, schoolhouses and churches are also located on each side of the river. Their school system utilizes 25 teachers and one of the unique features which has been developed at this mill has been the equipping of two special homes or dormitories for teachers which are operated upon a cooperative plan under which the average cost of board per teacher for the past year has been but $15 per month.

On one side of the river is located an auditorium with a moving picture equipment and this proposition is operated by the school board. The proceeds obtained from this picture theatre when added to the county school fund is sufficient to pay the entire cost of the school operation.

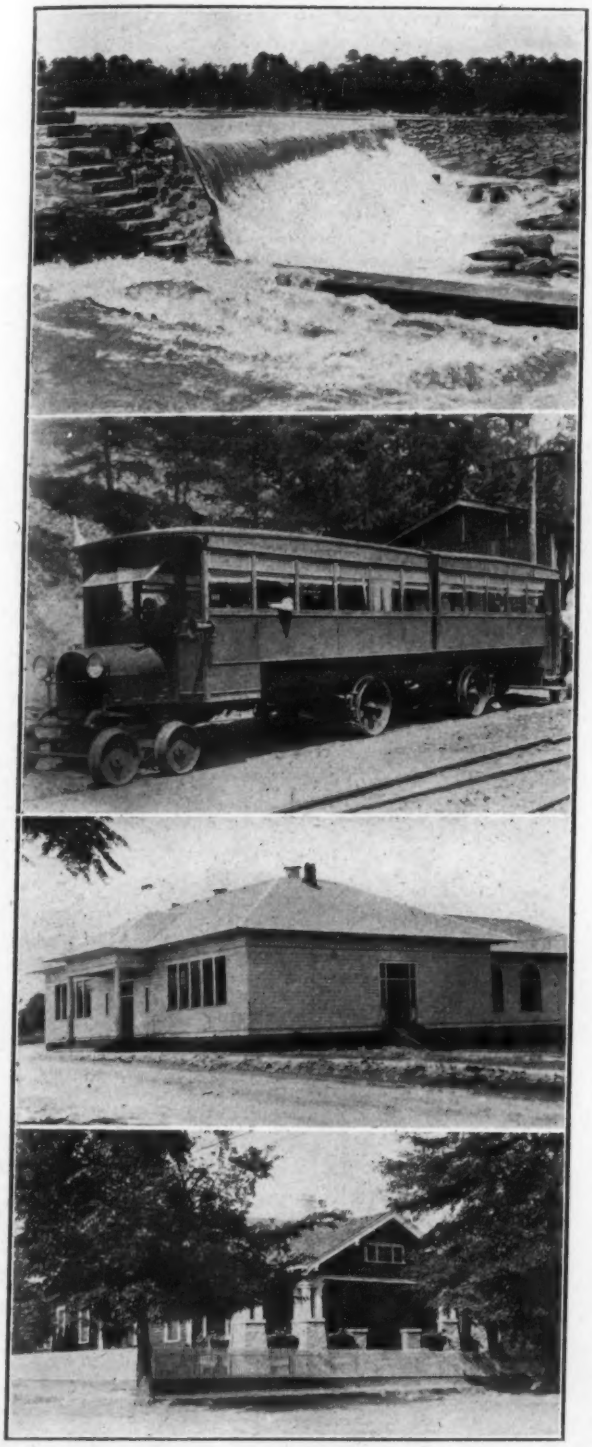
On the other side of the river is another auditorium equipped with a moving picture machine and the proceeds from this theatre is devoted to the development and upkeep of the lodges of the various secret orders. The lodge room is located on another floor of the same building.

A handsome club house containing the band room and other features is located close to the teachers' dormitory on the east side of the river. An excellent band is being developed under a paid teacher and director who spends two days a week with the band.

Two general stores or commissaries are operated, one for each village, at which the necessities are sold at cost to the villagers. While the necessities are sold at absolute cost, the many other products carried bring up the average of profit so that the profit on the gross sales is just sufficient to cover the interest on the investment and the rent.

On the west side of the river a new $50,000 Baptist church is being built while the combined villages also support an excellent baseball team.

It was the writer's pleasure while at Tallassee to be allowed to sit at one of the weekly overseers' meetings in the office of the superintendent and while at this meeting learned of a very satisfactory plan which is in operation at this plant for securing better quality production from the various weave room sections. This plan is based on a bonus system and every loom-fixer in charge of looms on plain constructions who succeeds in keeping the seconds in his section below 1 per cent gets a bonus of $3.00 a week. Over 1 per cent and under 3 per cent a bonus of $1.50 a week is paid. On the more complicated construc-



From Top Downward: A View of the Spillway. The Birmingham & Southeastern Railroad Train. One of the Auditoriums. Residence of Agent W. E. Johnson.

tions a similar $3.00 bonus is paid each week to those loom-fixers whose sections show 3 per cent or less of seconds, while those fixers who have more than 3 per cent but less than 6 per cent secure a bonus of $1.50.

Reverting again to the villages it may be well to mention that sewers are being installed at several points while the water supply is drawn from the Tallapoosa River, suitably filtered and chlorinated and run to the houses by gravity from a large steel tank. Electric lights for the villages are furnished from the mill power house.

The Avondale Mills at Alexander City, Ala., are to build an extension to the three-story building; an extension to the weave shed 80 by 150; an extension to the warehouse 100 by 100; and a new clothroom 60 by 100, two stories high, all mill construction. J. E. Sirrine is the engineer.

The Robul Mfg. Co., of Selma, Ala., has been organized with a capital of $60,000 to establish a cotton mill. Frank Bell and associates are the incorporators.

The Consolidated Textile Corp. will enlarge the slasher room, increase the number of slashers, build a hollow tile office building and erect an ornamental fence at the Pelham (Ga.) Division.

Conditions of the cotton yarn market were fully discussed at a meeting of representatives, southern spinners, at Charlotte recently, who represented both the soft and hard yarn spinners' associations.

W. B. Moore, president of the Southern Spinners' Association, later issued the following statement:

"Considering the large quantities of yarn on railroad tracks, accumulated on account of embargoes and the exceedingly high cost of production caused by the high price of material, labor and so forth, it was the unanimous opinion of the meeting that it would be very hazardous to accumulate stocks and as the market seems to be at a standstill there seems to be nothing for the immediate future except curtailment.

"It was the opinion of all present that it is the wise course to follow and southern mills will likely curtail from now on during the summer, each mill according to its own plans. Some will shut down completely for ten days or two weeks during July and August, while others will adopt a three days' a week curtailment plan.

"Yarns such as manufactured by the mills of this association, coarse counts, have not enjoyed a margin that will permit their meeting a radical reduction in prices."

The month just passed recorded a number of interesting meetings, and while we should like to treat each one fully, the amount of space to do this makes such an attempt impossible. On July 2, 3 and 4 an industrial conference was held at Blue Ridge, N. C., which was well attended and at which a number of excellent addresses were made. On another page we are reproducing one of these by W. C. McMann. Other speakers were C. R. Towson, L. W. Clark, L. P. Alford, M. L. Cannon, H. R. Fitzgerald, Homer L. Ferguson and others.

On June 24 and 25 the North Carolina Cotton Manufacturers held their semi-annual meeting at Asheville. As usual this meeting was well attended and much interest was shown in the several addresses presented. The officers for the ensuing year are T. C. Leak of Rockingham, president; A. H. Bahnson, Winston-Salem, 1st vice-president; J. H. Webb of Hillsboro, 2nd vice-president; Bernard Cone of Greensboro, 3rd vice-president, and Hunter Marshall, Jr., of Charlotte re-elected secretary and treasurer.

Finally, there was the second annual conference of Textile Social Workers at Winthrop College, Rock Hill, S. C., on June 28, 29 and 30.

The Bibb Manufacturing Company will build a large addition to the Osprey Mills at Porterdale, Georgia, to include another new mill and 150 cottages. The cost will be about $1,000,000. Robert & Company are the engineers.

The Republic Belting Company of Baltimore, Md., has secured a building and will install heavy duck looms to make stitched and woven beltings. The company is capitalized at $200,000 and C. H. Dankmeyer, 726 West Platt St., is president.

Stuart, Keith & Co., of Baltimore, Md., has incorporated with a capital stock of $500,000 to manufacture cotton goods including dyeing and finishing.

The Cotton Mill Products Co., of Winona, Miss., has been incorporated for $1,000,000.

The Eagle Yarn Mills of Belmont, N. C., are preparing plans for a $200,000 addition to its plant.

The recently organized Cedar Grove (N. C.) Cotton Mills will build a 15,000 spindle yarn mill. Sixty acres of land has been secured for the mill and village. A. C. Lineberger of Belmont is the moving spirit.

The Charlotte (N. C.) Spinning Mill Co., will spend about $300,000 on additions and power plant.

The new mill of the Roseland Cotton Mills Co., of Charlotte, N. C., has been completed and 4544 spindles are being installed.

The Lawrence Cotton Mills at Durham, N. C., will erect a three story addition to its plant 60 by 80 feet. J. E. Sirrine is engineer.

The Florence Mills at Forest City, N. C., are having designs made for a new clothroom 50 by 80 feet and three stories high, of mill construction. J. E. Sirrine is engineer.

The Priscilla Spinning Company of Gastonia, N. C., are to build a three-story concrete and steel mill building 300 by 135 feet with warehouses and 72 cottages. The cost will be about $800,000 and the Watson Engineering Co. are the engineers.

The Love Cotton Mill to be built at Lincolnton, N. C., will have 7,000 spindles and preparatory machinery for making fine carded yarns.

Another Lincolnton mill to be built will be the Melville Mill No. 2 with 6,000 spindles for coarse combed yarns.

The Center Cotton Mill Co., of Maiden, N. C., has been incorporated with a capital stock of $250,000.

The United Mills Company at Mortimer, N. C., capitalized at $500,000 have taken over the site of the Ritter Lumber Company and will install a 5,000 spindle yarn mill.

It is reported that C. E. Hutchinson and others will organize the Union Cotton Mill No. 2 at Mt. Holly, N. C., and erect a 10,000 spindle yarn mill at a cost approximating $600,000.

The Yadkin Finishing Company of Salisbury, N. C., will enlarge and improve the bleachery and contemplate building a power dam across the river.

The Ivanhoe Mfg. Co., of Smithfield, N. C., are planning to build their No. 3 Mill at Four Oaks, N. C. This will include a 10,000 spindle mill, a warehouse and a heating plant. J. E. Sirrine is engineer.

The Inverness Mills Company of Winston-Salem, N. C., are to build a new cotton warehouse. J. E. Sirrine is engineer.

The Little River Light & Power Company of Abbeville, S. C., have bought a water power site and 180 acres of land and will begin the erection of a cotton mill immediately, it is reported.

The Enoree (S. C.) Mills are to electrify their equipment of 36,000 spindles and 842 looms using individual drive. Two generators will be installed, one on the engine and one on the water wheel. J. E. Sirrine is engineer.

The Fairmont (S. C.) Mfg. Co., will build a new cloth storage warehouse and a waste house, each of mill construction. J. E. Sirrine is engineer.

The Graniteville (S. C.) Mfg. Co. is to build a new school building to cost about $100,000.

The Duncan Mills at Greenville, S. C., is building an 80 by 150 foot addition of concrete construction to prepare silk warps. J. E. Sirrine is engineer.

Another mill to electrify is the Camperdown Mills at Greenville, S. C., with 12,700 spindles and 600 looms. J. E. Sirrine has the plans in charge.

The Pickens (S. C.) Cotton Mill will install an ice plant and electric lighting system for the mill village.

It is reported that the Lone Star Brewing Co., of San Antonio, Texas, is to convert its large brewery into a cotton mill to be known as the Lone Star Cotton Mill, with a capitalization of $1,300,000. Greg & Co., of Newark are the engineers.

The Cherokee Weaving Mills of Gaffney, S. C., is a new enterprise capitalized at $60,000 for the manufacture of mercerized shirtings. Fifty looms are now being installed. Electric power will be used and it is hoped to have the plant in operation within 60 days. C. H. Robbins is president and G. D. Young secretary and treasurer.

A charter has been granted the Oakboro Cotton Mills of Oakboro, N. C. This is a $500,000 corporation with $125,000 paid in by A. N. James of Mt. Pleasant, J. R. Teeter of Oakboro and others.

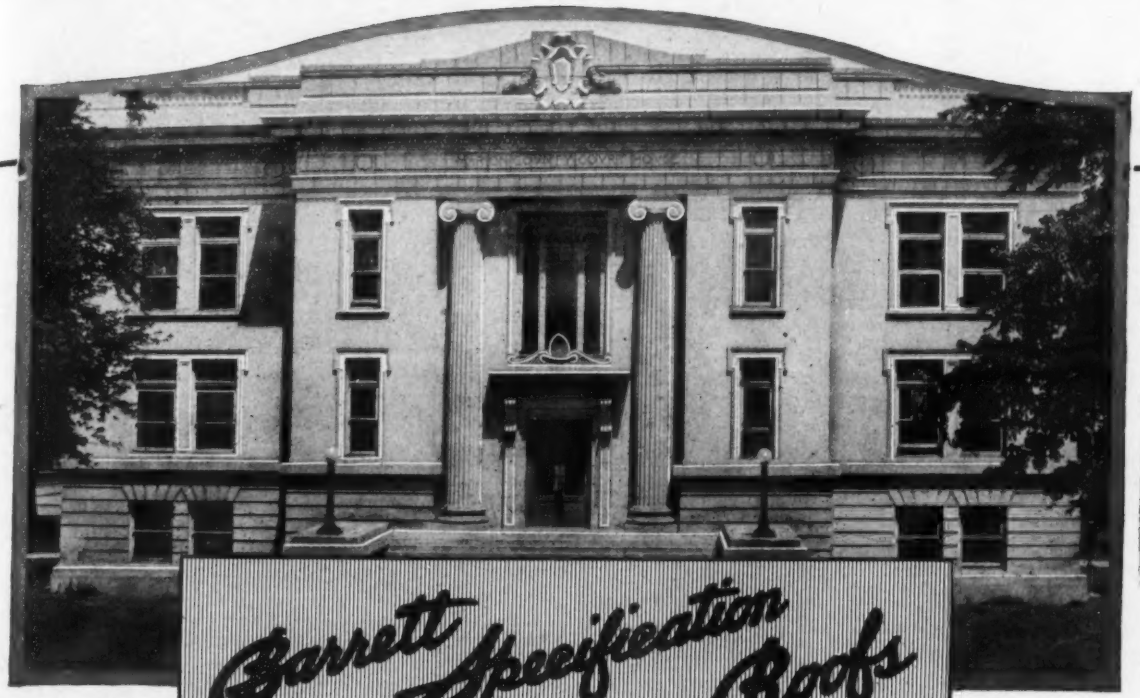
Work has begun on the addition for the bleachery at the Georgia Cotton Mills at Griffin, Ga. Ten bungalows for the foremen are also being constructed.

The New England Mill Situation.

Cotton yarn and cloth mills in this section have gathered in new business very slowly in the past month. Many yarn mills are curtailing, especially those that have been getting business from sources connected with the automobile trade. The combed yarn mills spinning hard twists have been affected more by the lack of orders or by the deferring of deliveries than the mills making yarns for the knitting trades. The latter have not been getting new business but their customers have not been so arbitrary in their requests for deferring shipments.

Prices on gray cloths for printing and converting have declined steadily. On the goods going to the converters supplying garment and clothing manufacturers the declines have been quite as sharp as the advances were last fall and in the early part of this year. Some sateens have sold in the New York markets at 40 per cent off the top prices of the year, and some of the fine twills have also suffered in a similar degree. There had been a great deal of speculative buying in this division of the market and those who have had goods coming to them have been reselling at figures showing material losses.

Prints have remained unchanged but print cloths have



20 Year Barrett Specification Bonded Roof on Marion County Court House, Salem, Ill.

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WHEN the Marion County Court House at Salem, Ill., was built a few years ago, it was not at that time covered with a Barrett Specification Roof. Instead a more expensive type of roof was chosen.

After only four years of service an entirely new roof was required. Needless to say, one experiment was enough. This handsome structure now carries a Barrett Specification Roof, guaranteed to be free from all maintenance and repair expense for 20 years.

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The Barrett 20- or 10-Year Guaranty is in the form of a Surety Bond, issued by the United States Fidelity and Guaranty Company of Baltimore.

Any Barrett Specification Roof of 50 squares or larger, in towns of 25,000 and over—*and in smaller places where our Inspection Service is available*—may be thus insured free of charge.

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Our only stipulations are that The Barrett Specification *revised April 15, 1920*, shall be strictly followed and that the roofing contractor shall be approved by us and his work subject to our inspection.

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Both roofs are built of the same high grade waterproofing materials, the only difference being the quantity used.

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The Barrett Company

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sagged steadily. Very recently a sale of print cloths made by a southern mill on a basis of 17½ cents for 38½ inch 64 x 60s for October-December shipment marked a decline from the top level of the year of 8½ cents a yard. In March of last year the cloths sold at 8½c. Other constructions have not declined quite so rapidly although many of them are quoted 25 per cent down. Narrow print cloths have sold down to 14c a yard for 27 inch 64 x 60s but this drop is not as great as that seen in the wide fabrics. Declines of this character spell great losses as there are many buyers who are receiving gray goods each week purchased on much higher levels than those now prevailing.

Merchants and manufacturers have been fearing for some months that a 33⅓ per cent contraction in price was possible on gray cloths yet they have not been able to so shape their business as to provide against it. Nor have the buyers of goods been able to control their engagements to relieve themselves of the effects of a shrinkage. The question now uppermost is the one of whether a sharp upward turn in prices is probable when converters begin buying, or whether the converters will continue to hold off until the new cotton crop is made and the jobbers and retailers have arrived at the place where they will anticipate future business and place orders that will lead to mill orders.

An answer to some part of the uncertainty of the immediate market position was given when the Amoskeag Company named prices for spring on gingham lines on the 19th of July. This company, the largest single producer, offered its product to April 1, 1921, delivery to begin December 1, on the same basis of list price as the one prevailing in January. It also guaranteed its prices up to the date of invoicing. It did not make as high prices as some of the goods brought during the past few months in odd lot sales to needy buyers. It held to the basis of 27½c for staple ginghams, 35c for utilities, and 37½c for AFCs in 27-inch goods, and a basis of 33½c net for bookfold chambrays and 19,000 range, in plain colors, and 36c net for fancies. A new fine gingham in 32 inch widths was priced at 37½c net, while romper cloths and invincible suitings were continued at the old prices of 37½c net and 43c net, respectively.

By guaranteeing prices for over four months, and deferring deliveries 60 days later than usual, the company leaves wholesalers where they will take a very small share of the market risk in obligating themselves to take in what goods they will need for spring. The policy is the most liberal one mills have ever undertaken with buyers and was adopted with a view to checking the tendency to curtail production.

For some weeks past there has been a tendency on the part of some manufacturers to open their lines for spring and adopt a take it or leave it attitude with the trade. Manufacturers have talked of shutting down mills as a necessity to avoid losses. While this action can be justified readily enough from the viewpoint of the danger of accumulating stocks at high cost, it is not a constructive policy in assisting to meet the complicated conditions confronting buyers. They are taking in many goods that have been paid for and have been delayed in delivery by transportation difficulties. They are called on to pay 8 and 9 per cent for money when they can get it. They know that the country wants lower prices and if production is not maintained lower prices will not be maintained long.

By accepting the risk of the price conditions of the future and guaranteeing the buyer protection up to a given time, the Amoskeag Company has gone a long way toward encouraging continued production. If production is maintained it is believed that lower prices will be maintained, although for the present the lower prices must come out of the profits of the mills. Other gingham manufacturers are likely to follow the action of the Amoskeag. It is stated in the markets that the unusual policy was adopted by the big company after several interviews with large jobbers and cutters who do not want to be short of standard goods when the present trade uncertainty has passed.

Wash fabric lines are being opened for the spring season but the buying has been very light. Prices have been reduced in some instances as much as 30 per cent from the top prices of the current spring and summer season. Converters are counting upon lower prices for fine gray cloths and some cloths are actually down 25 per cent. Voiles, and some other goods have been sold at low prices in the second-hand markets and mills have gone a long way toward meeting some of the low levels with preferred customers.

Within a short time bleached cottons will be priced on a new basis. At least a 20 per cent reduction is looked for on some of the better known brands. Jobbers do not expect to buy bleached cottons very freely whatever price is made and many of them say frankly that they will only provide for 90 days ahead under present conditions of trade. The printers of percales and staple prints have been continuing the old prices and it remains to be seen whether they will revise at all before September.

The finishers have been running very light for the past four or five weeks. Some printers still have many old orders to fill. They are getting little or no new business. Where dress fabric converters have put in orders for spring they have put down a larger volume of orders on voiles, organdies and lawns than on other goods, but voiles have been ordered in about twice the volume of the other cloths. The shirting business has been hard hit at the merchandising end. Orders in hand at the mills are being completed but new business does not come forward very fast. There has been more of a tendency of late to look for a larger business on colored yarn fancies for dress fabrics and the business that is developing on silks and cottons for next spring is larger than it has been for two or three years past. This is accounted for by the reasonable deliveries that can now be made on silk and fine cotton yarns and the much lower prices that are possible.

Such cloths as silk striped voiles, swisses, and fancy silks and cottons are wanted more freely by the converters and some of the mills that have declined this sort of business for a year or two are now inclined to welcome it in lieu of the volume business on plain work which is wanting at the present time.

A feeling of anger is expressed in some manufacturing circles against concerns doing business on auto supply fabrics of many kinds. They have attempted in some instances to arbitrarily suspend deliveries from 60 to 120 days. This is in sharp distinction with the shoe trade where dullness is great but where converters of shoe lining

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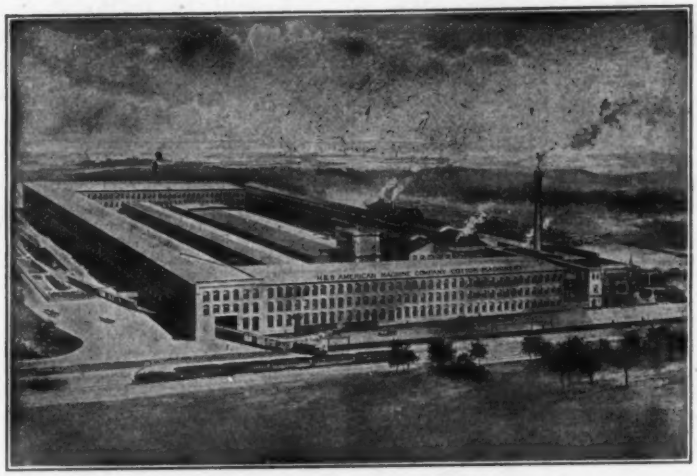

Spinning Room Machinery

Twisters for Wet or Dry Work

With Band or Tape Drive

H & B AMERICAN MACHINE COMPANY

PAWTUCKET, R. I.

fabrics are taking in their goods as usual.

Cotton manufacturers believe the auto industry has received a set back from which it will not recover in months in so far as requiring the quantities of cotton goods it has been using, is concerned. The immediate effect has been the releasing of looms above 40 inches in width so that they can now be employed on many of the staple commercial cloths that have been over-priced in consequence of scarcity arising from the needs of the hetic buyers for auto supply companies. It is fully expected that wide sheetings for domestic purposes will become more readily obtainable if not lower in price.

During the summer months not much improvement is looked for in the labor situation. Some manufacturers say they can already feel the effect in some degree of idle woolen and silk mills in this section and the limited curtailment of operations in some of the cotton mills. Operatives have at least ceased to talk strike and to demand still greater concessions from capital. It is also noted that mill share values are on a less feverish basis of price and fewer reports are circulated of wonderful prospects for profits in the balance of the six months of this year.

As a rule manufacturers do not look upon the situation as dangerous in the sense noted in wool or silk markets. While they expect that prices may sag to a basis below costs for a time, they do not expect that the condition will remain long. It is already being made plain to buyers that mills have entered upon a six months' of the highest wage scales ever known, and a price for coal that is simply stupendous compared with anything hitherto experienced. Mills are contracting for coal at $15 a ton! This means to one large finishing plant alone, an extra cost of $500,000 for the coming winter. With costs so high and without any immediate prospect of a change of moment to a lower level, manufacturers do not think prices can go much under a basis of 25 per cent from the extreme top on unfinished goods.

Leading manufacturers of cotton machinery have not suffered the same hesitation in business that has been seen in cotton cloths and yarns. Some concerns are engaged ahead for two years. A strike of three weeks' duration has been on in the American Machine Company at Pawtucket growing out of a demand for a 48 hour week after wage concessions were made. It is believed that this will not last and it will certainly be fought by the companies. A very large part of the orders that are in for spinning come from concerns engaged in supplying tire factories or special fine yarns for other manufacturing purposes. At least a million spindles are under order for concerns making tire yarns or some other yarns going directly or indirectly to the auto industry.

Allen Spindle Corporation, 80 Boylston St., Boston, is distributing a pamphlet on the ball bearing twister spindles manufactured by them. The timely question "Would increased production from twisting frames be of value?" is the theme of the brochure and is discussed thoroughly and logically and instances are cited in which a change from plain journal spindles to ball bearing spindles have aided increasing production. The Allen type of ball bearing spindle is made to replace any type of plain journal twister spindle without change to the frame, rail, spools or drive.

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OE-504

Cotton Comment.

BY H. AND B. BEER.

As anticipated in our review of last month, the condition of the growing crop improved during the month of June, making the outlook for the new crop more promising. Returns to the government, as of date June 25th average the condition of cotton at 70.7 vs. 70 last year and the ten year average of 79.8. The condition on May 25th was 62.4, the lowest for that date on record. The indicated yield on June 25th was 11,450,000 bales exclusive of linters.

The government estimates an increase in the cotton acreage this year of 1.1 per cent, or a total acreage of 35,504,000 vs. last year's revised acreage of 35,133,000.

Since June 25th the weather in the interior has been generally favorable for further satisfactory progress of the crop, and we are of the opinion that the August bureau report will indicate a larger yield than was promised last month, perhaps around 12,000,000 bales exclusive of linters. Except for being late, the situation in Texas is very encouraging for the making of an average crop in that important state.

The acreage by states shows the following changes compared with last year: Increase: Virginia, 5 per cent; North Carolina, 2 per cent; Florida, 4 per cent; Texas, 3 per cent; Arkansas, 2 per cent; Missouri, 12 per cent; Oklahoma, 15 per cent; California, 50 per cent; Arizona, 115 per cent; New Mexico, 200 per cent. Decrease: Georgia, 8 per cent; Alabama, 1 per cent; Mississippi, 2 per cent; Louisiana, 7 per cent; South Carolina and Tennessee show no change.

In addition to the slight increase in the acreage, advices are to effect that sales and use of fertilizers in the South are much in excess of one year ago.

At the moment the average condition of the crop, after starting off as the lowest on record, is now nearly back to normal, with every promise for a larger crop than last year, perhaps by 500,000 to 1,000,000 bales. However, the trade is apprehensive of the possibility of heavy damage by insects, especially by weevils, owing to the lateness of the crop. Such injury is usually inflicted commencing with the middle of July; this year it is not expected, if it occurs at all, until after August 1st.

In addition to the possibility of serious damage by insect pests in August, there is much uneasiness as regards the possibility of an early killing frost evertaking this late crop. Therefore, the ultimate size of the crop will depend mainly upon climate conditions in the future, doings of insects and the date of the first general killing frost.

At the moment the size of the crop hangs in the balance, for while present prospects are for a production of about 12,000,000 bales without linters, final results may show only 11,000,000 or as much as 13,000,000. Whatever the size of the crop may prove to be ultimately, there is every assurance that a yield of about 13,000,000 bales will be needed for next season, linters included.

Consumption in the United States, instead of being curtailed, as rumored recently, appears to be expanding again. Returns for the United States show that during June American mills consumed 100,000 bales more than for corresponding month last year—589,000 vs. 489,000, of which 54,000 were linters against 16,000. This brought the total consumption in the United States for the first 11 months of the season up to 6,197,000 bales against 5,691,000 for the corresponding period last season, including 296,000 linters vs. 435,000.

Compared with last year American mill stocks at close of June were 1,555,000 vs. 1,363,000, while stocks in public storage were 2,305,000 vs. 2,766,000, making total stocks in the United States, visible and invisible, 3,860,000 against 4,127,000 while active spindles were 34,503,000 vs. 33,950,000.

Spinners takings and movement of crop to market, weekly statements, have been discontinued until the end of the season, July 31st, when figures for the whole season, including consumption, will be issued.

Confidence in the outlook for business is gradually being restored at home and abroad. Manchester advices report improvement.

Middle States Mill Men Meet.

BY A. W. WILLIAMS.

With members of five out of the six states represented in the Middle States Textile Manufacturers' Association present, the 1920 convention of the organization was held at the Louisville Country Club July 21st. Members present represented Ohio, Indiana, Missouri, Kentucky and Tennessee, Illinois not putting in a showing. Of the 22 mills listed as members, a total of 12 were represented. The organization while showing slow growth has rounded up practically all of the larger mills that are eligible.

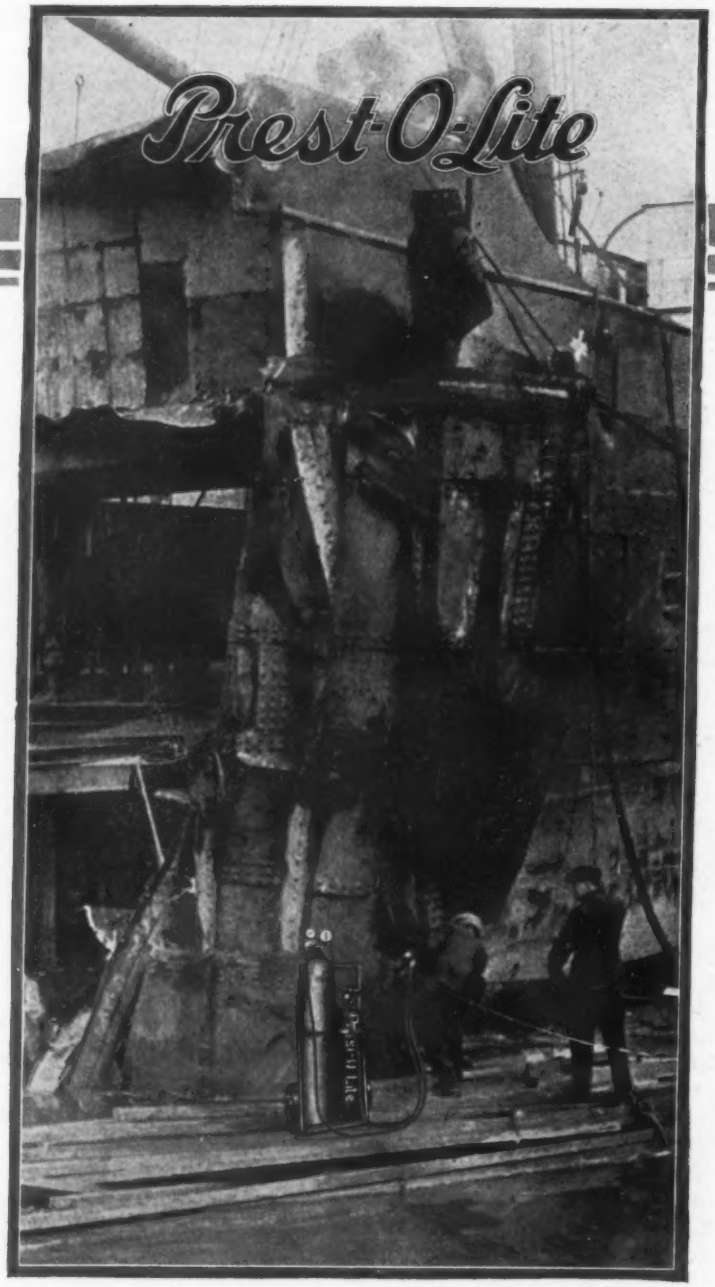
At this meeting of the association Capt. Paul J. Marrs, of Henderson, Ky., formerly head of the Henderson Cotton Mills, was named honorary president for life, this being in recognition of his long years of active service as head of the organization, which he aided in organizing. Capt. Marrs was unable to be present. Vice-president Philip S. Tuley, of the Louisville Cotton Mills, acted as president.

Officers elected were: president, Philip S. Tuley; vice-president, C. A. Young, Indianapolis; secretary-treasurer, Lee Rodman, Cannellton, Ind. Directors: W. G. Young, St. Louis; Michael Bettinger, Tell City, Ind.; C. N. Brown, Evansville; F. G. Eberhart, Miskawaka, Ind.

The convention opened shortly after 10:30 in the morning, at the Louisville Country Club, the members having previously met at the Seelbach Hotel, making the trip in automobiles. Lunch was served at noon, and a big dinner at 6:30 in the evening, several of the members having put in a few holes of golf just prior to the dinner, thereby working up an excellent appetite.

The morning session, as well as the greater part of the afternoon session, was devoted exclusively to discussion of Vocational Education, including the federal law, and coperation on the part of the states. In Kentucky the State Department didn't have a full time man until about a year ago, and didn't have an industrial man on the board until a few months ago, when Tom Tuley, of the Louisville Cotton Mills was named.

At the convention some good men were present to discuss the vocational situation, including Roy Dimmitt, of the Federal Board at Washington; G. Ivan Barnes, Ken-



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tucky State Director, and A. N. May, Federal Supervisor of Industrial Education in Kentucky. These men discussed the law, reason for enactment, and what has been done, taking up principally methods of working out information that can be had by reading closely Bulletin No. 30, Trade and Industrial Board of Vocational Education in Washington.

Discussion was heard concerning part time schools in the textile mills. Mr. May suggested fitting up a special room, with the various machines and placing competent instructors in charge of these machines, giving them equal authority with superintendent, so that they can say that a pupil may not be placed on regular work until he knows it. Mr. May also discussed policies of sending people away to schools to learn the work on salary, but stated that it was almost impossible to get employees to go away to learn.

Mr. Barnes took up various phases of the work, both inside of the mill, and in special schools, and stated that no matter how the student was taught, it became vocational work of a sort. Several members had explained how they picked their best workers, and assigned to them the breaking in of new people.

Mr. Dimmitt went into the subject more deeply, and stated that in his opinion it would be much better if boys of fourteen years of age were to take the vocational courses, and fit themselves in advance for earning wages when they should become sixteen years of age, and ready to enter industrial life, as otherwise they were getting a late start.

He also advocated domestic science classes to teach girls home duties. Many girls enter mills early in life, and never learn how to cook, sew or keep house. They marry and settle down to an existence, which is not satisfactory to the husband, and not good for the future generation. Many women working in mills are housekeepers, but haven't any idea of how to properly cook, or keep house. The children under such conditions are underfed, anemic and make a poor class of workers when they grow up.

There is a type of man who makes the mill worker who wouldn't fit in especially well in other walks of life. He isn't the best worker in the world to start with, but by proper education along vocational lines, and by means of fitting him for the next position above him, he has greater future, and becomes a more valuable man, while by teaching the women domestic science a better class of workers is promised in the generations to come.

C. A. Young, of the Indianapolis Bleachery, stated that he had always followed the principle of breaking in his own employees, taking the best worker on a specific job, and using that worker for a teacher. The teacher sometimes while excellent workers are not good teachers, but that can't be helped.

Mr. Dimmitt stated that members need not fear that they would get too many young men into the classes, or that they would develop more men than they could use, and lose them to other companies, as it is a big class in which as many as ten to fifteen enroll.

He referred to the short courses of from three to forty-eight lessons, in Textile Units, being found on Page 28, of Bulletin 30, and suggested that members organize classes for such departments as are needing workers the most, and try out the plan.

Resolutions were adopted condemning the present Federal Income Excess Profit Tax laws, which are held to be holding down new industrial development, as they kill initiative and prevent new companies from entering the field; as the tax profits is so great that a poor second year may break them. Another resolution adopted approving the open shop plan of handling labor.

The question of the effect of car shortage on coal supplies was brought up, and President Tuley stated that in his opinion there would be trouble this winter, and that he believed that all members should stock as much coal as obtainable this summer and fall. A very few members reported that they had placed contracts, most of them being unable to place, while those who have contracts stated that they were unable to secure as much coal as they need and have to buy outside, as shippers can't fill contracts.

In reporting for the Cotton Rules Committee Lee Rodman stated that the association for several years had been using modified rules of the Carolina association, and that there has been a steady movement toward more uniformity in rules, although New England is using a 24 pound tare allowance, and some mills twenty, while others are using the much fairer percentage basis, some deducting 6 per cent, but he using four and one half per cent on flats; and four per cent on compress. He stated that the tendency is to guarantee weights and net weights at that.

General discussion showed a good deal of optimism on the part of members, a few feeling that there would be no big profits or large dividends in sight this year, while bonuses paid workmen on good profits last year will be a burden this year, as cutting bonuses would result in trouble with the workers. It is believed that the slump reached its bottom in June, and that things are due to pick up slowly and steadily. It is believed that reduced production has had a steadying influence on the general market, and the European demand for cotton will also have a tendency to hold prices in line and prevent any stampeding.

Tight money and high interest rates have had their effect, but probably more so in the auto trade than elsewhere, production of autos, parts and equipment having slumped materially. A few months ago mills were sold up on tire and top, cushion and other fabrics, but today they have received many cancellations, and material is in good spot supply for cash.

Buying has been generally light and conservative, and the fellow who was sheepish about placing a 100,000 yard order two years ago, is slipping out a 20,000 yard order today, and buying merely for immediate use, and very little more. There are two reasons for close buying, the chief of which is the money situation, and the other being lack of confidence.

"Factories for the Future" is the title of an artistic 20-page booklet just published by J. E. Sirrine & Company of Greenville, S. C. It is liberally illustrated with half-tone reproductions of a number of the buildings upon which this firm acted in its dual capacity as architects and engineers, while the text matter deals with many facts relating to building.

Notes About Men You Know.

ELWIN H. ROONEY, of Providence, R. I., for many years connected with the Whitin Machine Works, has become associated with the Allen Spindle Corporation as their sales manager and textile engineer. Mr. Rooney has many friends in the textile industry and his knowledge is regarded most highly. He is still connected with the Gordon-Hay Company, Inc., with headquarters in the Industrial Trust Building, Providence, as treasurer and northern sales director. John Hill, of Atlanta, Ga., is vice-president and southern sales director of this company. The Allen Spindle Corporation have taken a license from Beirne Gordon, Jr., of Utica, N. Y., to build the Gordon Cotton Cleaning Machines. There are five licensed builders under the Beirne Gordon patents of which the Allen Corporation is one.

HENRY W. ATKINSON has resigned his position as superintendent at the Mandeville Cotton Mills, Carrollton, Ga.

O. H. HAY succeeds Mr. Atkinson as superintendent of the Mandeville Mills.

J. W. MAY, after several years experience in the auto repair game, has accepted a position as superintendent of spinning at the Rodman Heath Cotton Mill at Waxhaw, N. C. He was at one time superintendent of weaving at the Springstein Cotton Mills at Chester, S. C.

J. H. SHINN, JR., formerly Philadelphia manager for the United States Conditioning and Testing Co., and now general manager of the United States Wool Co., has recently purchased a factory for this company at Richmond and Venango streets, Philadelphia. His company has a patented process for dry scouring wool.

N. L. DAWKINS has resigned from his position as overseer of the cloth room at the Pomona Mills.

ROBERT MCCOMMON, from Kannapolis, N. C., has accepted position as overseer of weaving at Ossipee Division, Consolidated Textile Corporation, Burlington, N. C.

J. M. CAVENESS has resigned as secretary and treasurer of Central Fall Mills, Asheboro, N. C.

M. E. PITTS, from Millen, Ga., has accepted position as general overseer of carding and spinning at the Forsyth Cotton Mills, Forsyth, Ga.

A. M. BATES has resigned as overseer of cloth room at the Buck Creek Cotton Mills, Siluria, Ala., to accept position as overseer of cloth room at the Montgomery Cotton Mills, Montgomery, Ala.

P. S. CRANFORD, formerly of Cowpens, S. C., has accepted position as night overseer at Baldwin Mill No. 1, spinning room, Chester, S. C.

H. J. JONES, formerly overseer of carding at Martinsville, Pa., has accepted a similar position with Henry River Mfg. Co., Henry River, N. C.

J. W. QUINN, from Wilmington, N. C., has accepted position as overseer of carding at Dresden Mills, Lumberton, N. C.

R. F. DELLINGER has resigned as superintendent of Grier Cotton Mills, North Wilkesboro, N. C., and has accepted a position with Cabarrus Cotton Mills, Kannapolis, N. C.

W. B. MORGAN has been promoted from overseer of weaving to superintendent of Ossipee Division, Consolidated Textile Corporation, Burlington, N. C.

B. E. GEER, of Greenville, S. C., president of the Judson Mills, left recently for a trip abroad where he will visit a number of European countries, returning sometime in September.

W. E. BEATTIE, of Greenville, S. C., was recently elected president of the Victor-Monaghan Mills to succeed M. C. Branch who resigned after nearly six years of service in that capacity.

J. A. MCFALLS has returned to the superintendency of Ranlo Mills at Ranlo, N. C.

E. P. HOLLIS, from Griffin, Ga., has succeeded E. G. Garner as overseer of weaving at Mary Lelia Cotton Mills, Greensboro, Ga.

E. N. TART has resigned as superintendent of the Tennile Yarn Mills, Tennille, Ga., and has accepted the position of superintendent of the Crawford Cotton Mills, Crawford, Ga.

A. F. BRIGGS, who has been superintendent of the Hermitage Mill, Camden, S. C., for several years, has resigned to accept a similar position at Osage Mill, Bessemer City, N. C.

J. D. PLAYER has been promoted from overseer of weaving to superintendent of the Hermitage Mill, Camden, S. C.

J. A. ROLAND has resigned as secretary of the Icemorlee Cotton Mills Co. Monroe, N. C., to become secretary and treasurer of the recently formed Iceman Knitting Mills, of the same city. He also remains as secretary and treasurer of the Everett Cotton Mills, of Monroe.

M. B. CLISBY, overseer of carding at Newberry Cotton Mills, Newberry, S. C., has resigned his position, effective September 1, to go into the cotton business with his father in West Point, Miss.

R. L. DAVIS, from Honea Path, S. C., has accepted position as overseer of spinning, spooling and warping at Calhoun Mills, Calhoun Falls, S. C.

GEORGE F. PAYNE, superintendent of the Mount Royal Mills of the Dominion Textile Company at Montreal, was a guest of the Georgia mill men at their annual banquet at Quebec. He was accompanied by Mrs. Payne.

L. H. BECK, general superintendent of the Georgia Cotton Mills at Griffin, Ga., attended the Shriners' convention at Portland, Ore. This was why he was absent from the annual meeting of Georgia men at Quebec. Portland is the other extreme. No wonder the Shriners believe in camels.

T. B. FULLER, for 33 years president of the Golden Belt Manufacturing Company of Durham, N. C., tendered his resignation on July 10th. He was succeeded by G. W. Hundley, formerly vice-president. Mr. Fuller will continue upon the directorate.

JAMES C. DOBSON has resigned as assistant manager of the Ashe Hosiery Mills, Knoxville, Tenn., to assume the management of a newly organized hosiery mill to be immediately established in the southwest, details of which will be made public at an early date.

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1. Unity in any line of business means strength to the individual.

2. The accumulation of individual strength means power to the Association.

3. Intelligent direction in the use of power means inevitable progress and success.

Trade and Industrial Associations are of importance in the business world only as they are of practical value to their individual members. They are of such value only as they seek knowledge, and take advantage of opportunities to use such knowledge, to clarify, to simplify and to unify the production and accounting details of their special lines. Under such conditions Trade and Industrial Associations are the greatest forces in the commercial world.

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STRAIGHT LINE METHODS

How Other Men Manage

Practical Discussions by Cotton's Readers on all varieties of Mill Subjects

Bleaching Towels.

EDITOR COTTON:

I wish to ask through the columns of your Practical Discussion Department for the best formula for bleaching towels with a turkey red border. Not only would I like to have the formula for boiling but also an account of the best practice from beginning to end in the handling of towels of various weaves. Towel (Ga.)

EDITOR COTTON:

In reply to "Towel (Ga.)" would say that towels with turkey red borders—provided the red in them is the real thing—can be bleached by any of the ordinary methods used in market bleaching except that no pressure must be used in boiling and no souring must be given after the final chemiking.

It is safe to say that aniline black, turkey red, catechu brown and iron buff and some few other colors can be treated in a practically normal manner except as to pressure and final souring, but many dyed colors are so fugitive through improper methods of dyeing or from natural causes that it is well to take no chances with them and it is therefore better to follow the rule that the fastest colors are more or less attacked and partly destroyed if they have to pass through all the operations of what is known as a full bleach.

The preservation of the color and the production of a perfect white on the uncolored portions of the cloth are not the only objectives in bleaching colored, or in fact, any, towels; the towels must be absorbent, and this can only be accomplished by plenty of boiling at a low pressure with weak alkalis and detergents and short time immersions in weak sours and chemik. Very weak chemik solutions are used, preferably hypochlorite of soda, and the goods should be washed after chemiking, but not soured.

Abroad it is customary to repeat the boiling two or three times, a rinse following each boil.

Following is an English method: (1) Boil in open kier 10 hours using 1 per cent soda ash, 1 per cent soap; (2) wash well and sour in hydrochloric acid at ½ degree Twaddle; (3) wash well and boil again as before; (4) wash and sour as before; (5) wash and boil as before; (6) wash and chemik at ½ degree Twaddle for two hours; (7) wash well.

In most cases the third boil is dispensed with, the goods being soured after the second boil, washed well and chemiked two hours and washed up.

Another foreign method: (1) Wet out in hot water and steep for 10 hours (or overnight); (2) wash into open kier and boil 8 hours in 1 per cent soda ash and ½ per cent soap; (3) wash from kier and sour in oil of vitriol at ¾ degree Twaddle; (4) wash and boil as before; (5) wash and chemik for 4 hours at ¾ degree Twaddle; (6) wash well; (7) antichlor and wash.

I would say that the use of antichlor is unnecessary and unadvisable. It makes the goods turn yellow. I have made a specialty of this class of work (colored borders and headings) and for turkey red, aniline black, etc., I have found that the usual lime boil for the first boil is perfectly safe—if not the best. I proceed as follows: (1) Wet out and steep overnight, preferably in 2 per cent of diastofor; (2) lime in machine into low pressure kier and boil 10 hours; (3) wash and sour in hydrochloric acid at ¾ degree Twaddle; (4) wash and boil 8 hours in open kier with 1½ per cent soda ash and ½ per cent of rosin soap; (5) wash well and chemik for 2 to 4 hours in hypochlorite soda solution at ½ to ¾ degree Twaddle; (6) wash well.

Chloride of lime may be used but is not so good where there is no souring after the chemiking, and souring after chemiking must in no case be allowed.

Some of the experts in efficiency management will tell you that one boil in caustic soda is enough; don't you believe it. The first boil does nothing to help the bleach and absorbency of the goods; the first boil and subsequent souring merely form an insoluble soap in the goods which can only be removed by the second boil. This applies to all goods.

If the goods are for huck or barbers' towels with turkey red borders they should be wet out and steeped overnight, then boiled 10 hours in lime, washed, soured and washed, boiled in soda ash and rosin soap, washed, chemiked and washed, mangled, starched and dried on the cans, then heavily calendered.

If the goods are honeycomb or Turkish towels with colors in them they are boiled 10 hours in 2 per cent caustic soda, washed, soured, washed and boiled again in 1½ per cent soda ash and ½ per cent soap for 8 hours, washed from this, chemiked and washed, hydro-extracted and dried on the loop drying machine.

The lime boil and the rosin soap are for hard stiff finish towels and the caustic soda and soap is used for all soft finish goods. All the foregoing should be boiled in an open kier without pressure and a pump circulation, and hypochlorite of soda is preferable to chloride of lime on account of the ease by which it may be washed out in place of souring.

Towels of all kinds that are without colored borders can be bleached as follows: steep overnight, boil in soda lye at 2 degrees Twaddle for 10 hours under pressure (the soda lye is made up with 60 per cent caustic soda, 30 per cent soda ash and 10 per cent soap), wash from this and sour in sulphuric acid at 1 degree Twaddle, wash from this and chemik at 1 degree Twaddle, wash well and finish.

This is a one boil proposition and the souring can be done either before or after chemiking or both but it will take less chemic if the goods are soured first and will give a much better white.

This latter being a one boil process will appeal to

the efficiency man but it isn't good bleaching by any means, and it takes more—much more—chemicals but less time and much poorer work is done on the whole.

W. B. (Maine.)

Does Welfare Work Pay?

EDITOR COTTON:

I read with interest the letter "What About the Executive of the Future?," published in the March number of COTTON, and I agree with the mill man in Georgia who wrote it. He is entirely right in the comparison of the wages paid today and those paid in former days.

I have in mind one mill in which the doffers, spinners and carding room hands have received wage increases of from 110 to 183 per cent, while the superintendents and overseers had to be content with raises of 50 to 75 per cents, *not per cent*, every time the help got a 10 or 15 per cent increase. In the same mill, doffers and section hands are paid almost as much as the second hand. I think there is a difference in the wages of these men and the second hand of about 35 cents a week, therefore, if there is another raise given in the wages of the doffers and section men, these latter will be getting almost as much as the overseer, if not more, if the pay of the superintendents and overseers is not raised more than they have been in the past.

But fortunately, these conditions do not exist in all mills. This method of raising the wages of the help and leaving those of the superintendents and executives out of it is, as the mill man from Georgia says, going to be a draw back. For where is the doffer or section hand who wants a thankless second hand's job at very near the same wages as he is now getting, when he now has nothing to worry about? And the second hand usually fosters the same attitude, as he does not care to assume the burdens of an overseer for the small difference in the pay, and have to bear the responsibility which is the lot of many overseers at the present day.

There never was a time when the help have had so much done for their welfare as is being done now, and I have yet to hear of one mill in which this welfare work is being carried on where the help are satisfied. I know whereof I speak as I have worked in mills where various welfare systems are in effect. I have one mill in particular in mind, in which I once worked, which had registered nurses, baseball, football and basket ball teams, language schools, sewing classes for girls, classes for cooking and showing women operatives how to run a house as it should be run, and a lot of other things too numerous to mention. I can safely say that the mill next to this one, which had none of these things, was getting more production, better quality and had a more contented set of help. Why? In many cases the welfare work is overdone, or is in the hands of young college men who do not know how to employ the methods necessary to make it a success. It takes a pretty smart man now-a-days to handle help and get results that will show profits.

I was working as overseer in the mill mentioned as having welfare work in operation. Some of the overseers were called into the main office and asked by the manager the reason why the mill was down on production and why the quality was not good. The other overseers gave various reasons. Then the manager turned to me and asked me how it was that I was up in my prodution, my room kept clean, and not short of help. (The room of which I had charge at that time was a large warp spinning room with spoolers and warping.) I had expected the question and had my answer ready. I told him that he had filled his plant with sports of all kinds to the detriment of discipline and still insisted that his department superintendents and overseers dig in and push these sports along. I said that such things required so much pushing that the overseers had little time for anything else. I also told him that my help had no time to stand around during working hours, while the machinery was running, and talk about base ball, foot ball or any other sports; neither had my girls time to talk of sewing or cooking during the same hours; that I refused to let any department superintendent or the manager of any of the sport clubs come into my room during working hours and bother my employees. I told him further, in my opinion, the principal reason some of his overseers had fallen down on production was through the fault of his department superintendents, men who were made superintendent of carding and spinning, or weaving and slashing, but who nevertheless had to be the head of their particular sport clubs at the same time.

He wanted to know how that made any difference and I told him that if he wanted his department superintendents to see that the overseers got off the production, he should hire sport superintendents and then the department superintendents would not neglect their duties to mix in on the sports. Just so long as department superintendents and overseers have to mix in these sports among their help inside the mill, just so long will they be behind in their production and in the appearance of their rooms. If department superintendents and overseers are allowed to band together for two or three hours a day and talk over what is going to happen in base ball, or what has happened in foot ball, it will be only a short time until all the help will be doing the same thing; and in my mind they have just as much right to do this as their superiors, for it is for their benefit that the welfare work is being carried on. And then when some men are told they are not needed any longer, they wonder how it happened.

At present I am working in a mill in which, when I took my position, one-third of the machinery was stopped. Today it is all running, production is way up, we have a good, clean, experienced lot of help and, above all, the workers are contented. All this was accomplished without any welfare work or sports but by being just with all and taking an interest in them personally. If every overseer and department superintendent would show the same interest in their help and keep them where they belong, they would get results far beyond what they can get by this so-called welfare work.

I shall be glad to see the views of other mill men concerning this subject in your magazine.

K. F. (R. I.)

Your Money's Idle Hours

BECAUSE of the increased burden which war and resulting economic disarrangements have placed upon the dollar quicker turn-over of working capital is a most important factor in the financing of every business.

Payment of higher interest rates will not always secure funds. In a situtation where larger amounts are required for handling individual transactions and restriction of loans may be necessary to provide for essential activities, "*side-tracked credits*" are doubly undesirable.

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Metallic Rolls Versus Leather Rolls.

EDITOR COTTON:

Very recently the writer had the pleasure of a visit from a southern mill man. In the course of our conversation, I immediately discovered that he had a great dislike for metallic rolls. He advanced the old argument that they injured the stock, and besides, that they were not equal to the common leather rolls for the treatment of a very light drawing sliver. Again, he said, if they are superior to leather rolls, why are many mill men discarding them?

My answer to the gentlemen was that metallic rolls are misunderstood by the majority of mill men to this day, and the greatest mistake made by the man at the helm of any mill that has discarded metallic rolls was that in all probability the carder should have been discarded instead of the rolls. I am going to prove that statement by tests that can be made by most readers of COTTON.

(1) In this case, we will assume that we are running 1¼ inch average staple. The tests are as follows: (1) set the first and second rolls from center to center at 1⅜ inches, the second and third at 1½ inches, and the third and fourth at 1¾ inches. It will be found that the web will drop on one side and that every web will have a very bad appearance, being cut here and there. In such a case, condensing at the trumpet using the smallest trumpet will be of no benefit, and why? Simply because the rolls are too close, and the second roll holds the fibers, a dual operation going on between these first two rolls. However, even in this case the fibers are not injured. It should be remembered that the action of the top roll on the fiber is meshing only, and the only pressure on the cotton fiber is equal only to the rotation of the top roll.

In other words, as the bottom roll rotates the top roll, the stock being between the flute receives pressure on every flute brought into action on the fibers, but on only the driven side. Therefore, we must all admit that it takes very little pressure to rotate the top roll.

For this reason the fibers are not broken, but instead are pulled from under the action of the second roll, which is the strongest point in favor of metallic rolls. However, the foregoing action does cause many of the fibers to lag behind, and the result is that they are delivered in clusters, which makes the web have the appearance as described.

(2) Set the first and second rolls center to center at 1½ inches, the second and third at 1⅝ inches, and the third and fourth at 1⅞ inches. The second test will prove all this misunderstanding regarding metallic rolls. This proper setting will destroy the dual operation described, giving space enough so that the fibers being acted on by the front rolls will have passed the action of the second rolls. This is the reason why some metallic rolls have found their way into the scrap heap. The first and second rolls should in every case be set ¼ inch over the length of the average length of the staple. When the second test is made, which utilizes the proper settings, it will be found that a larger bored trumpet will be required.

Metallic rolls are, in my opinion, the only drawing rolls that will not injure the staple. Wash. (Conn.)

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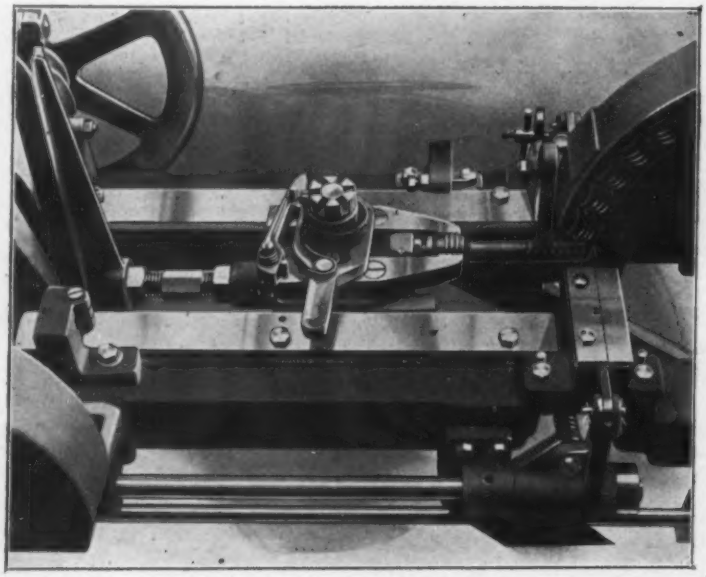

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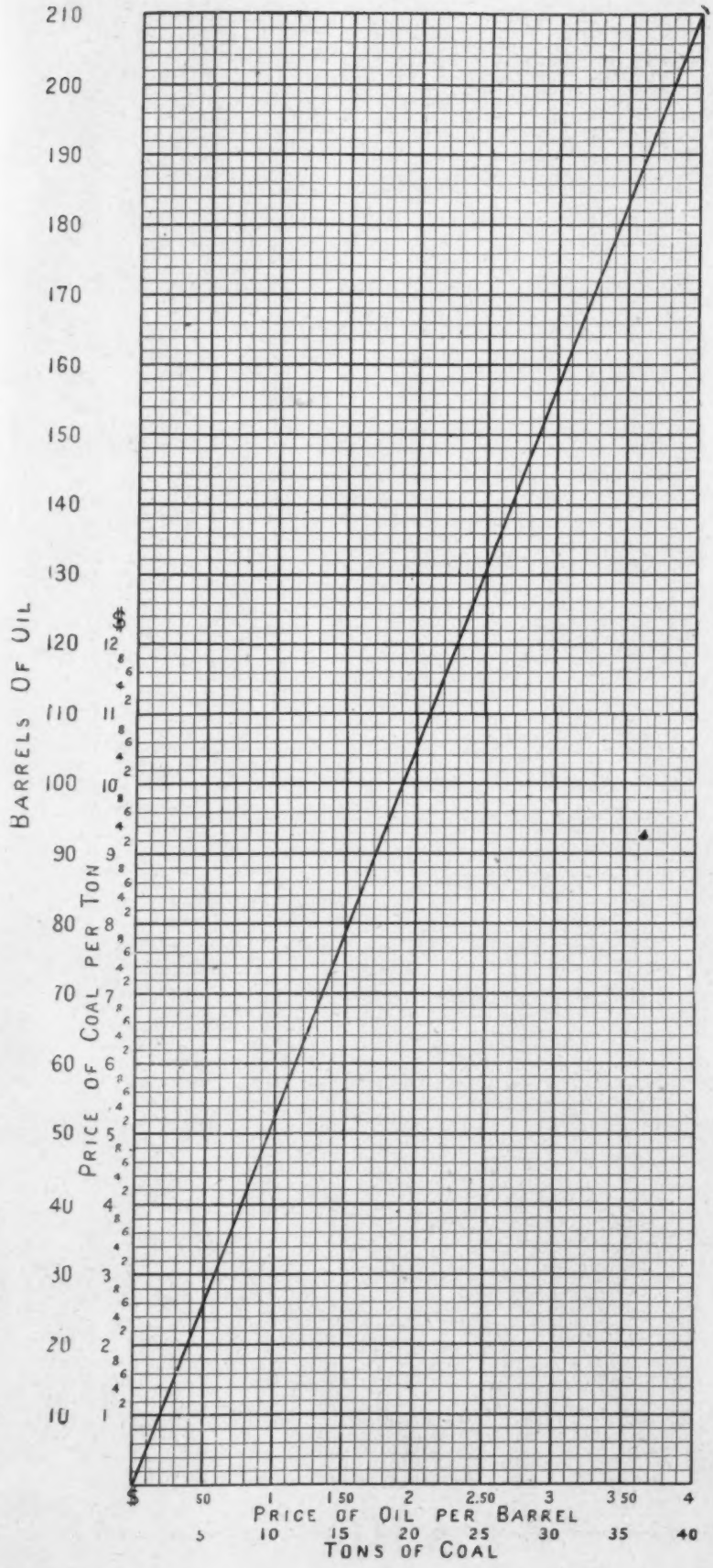

A Chart for Estimating the Amount of Fuel Oil Required and the Highest Price to Be Paid.

EDITOR COTTON:

This chart affords a quick and easy method of estimating the amount of fuel oil in barrels of 41 gallons each which corresponds to a given weight of coal, and for checking the price which should be paid for oil when the cost of coal is given. The values used in the preparation of the chart are averages from the principal coal and oil fields, hence the results do not apply minutely to any one grade of coal or oil; that is to say, the values obtained may not be correct to a cent when dealing with a particular grade of coal or a known quality of oil. The combined efficiency of furnace and boiler is taken as 67 when burning coal and as 70 when burning oil.

HOW TO USE THE CHART.

A coal-burning plant requires, say, 15 tons of coal a day. If converted to oil-burning how many barrels of oil will be required to do the same work? At the bottom of the chart find 15, representing "Tons of Coal." Follow the corresponding line upward to the diagonal, thence to the left to the column of figures indicating "Barrels of Oil." The vertical line meets the diagonal just below 80, hence about 79 barrels of oil of average quality will be required.

At the left of the chart is a column of figures representing the "Price of Coal per Ton." The small figures 2, 4, 6, 8, represent tenths of a dollar, or 20, 40, 60, 80 cents. Suppose the coal costs $9.00 per ton; how much should be paid per barrel of oil? Find 9 in the column "Price of Coal per Ton." Follow the horizontal line to the right to the diagonal, thence to the bottom of the chart and read $1.72. The horizontal line in this case meets the diagonal nearly on the second light line beyond the 1.50 vertical. As each of the vertical lines represents 10 cents, the two light lines indicate 20 cents beyond 1.50, or 1.70, and when read a little closer it is seen to be 1.72 or $1.72 per barrel.

Usually a saving of labor and cost of ash disposal is effected when burning oil. To find the highest price of coal which will balance the price of oil when including the saving of labor with oil, divide the saving in wages and otherwise by the number of tons

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This is an actual fence photograph—not a hand-drawn "exaggeration"

Anchor Post Fences

of coal which would be used in the same time, and subtract the quotient from the price of coal corresponding to the price of oil. When the price of coal reaches this figure there probably will be no saving by using oil. Suppose oil costs $1.25 per barrel. This corresponds to $6.60 per ton of coal. If 52 barrels of oil are used per day, the chart shows that 10 tons of coal per day would be needed, and the price will be 6.60 — (9 ÷ 10) = 5.70 per ton.

H. K. (Ohio.)

The Man Who Applies for a Job.

EDITOR COTTON:

As a rule, the man who applies for a position is an honest worker and seeker for promotion or employment, and deserves consideration. He is offering to sell his services. And it is just as honorable for him to offer to sell his services as it is for a man to sell his goods, and which is also only another form of selling one's own personal services. And yet a great many executives fail to appreciate the merits of the case, and thus a large number of honest applications receive little or no consideration.

It should be understood that applying for a position is just as honorable as is the offering of a position to a man. Both are a measure of sacred trust, and should be treated as such. Both should be worthy of at least a kind reply. It should be remembered that a large number of good positions are being aeceptably filled by men who were the honest applicants for these places.

In other words, if these men had not applied, or had received no consideration for their honest effort, these same places might have been filled with less satisfactory results. There is nothing humiliating about applying for a position, or of offering to sell one's own services where they can earn more money.

This letter is intended to create educational thought along the lines of what should constitute the relationship between the applicant for a position and the man who receives the application. While many mill men know how to treat these confidential matters properly, there are others who are sadly lacking in the just appreciation due to a man who puts his time into the effort to honor a party with the offer of his services. Any man should be highly appreciative of any letter received from any person offering his services. Each letter should be promptly answered without exception. This letter should express at least some form of a genuine "thank you," and also a "hope" that the applicant "may find something he wants soon," especially if no position is offered.

The letter should be properly filed so that it can readily be found when such matters may again require attention. When an applicant receives a reply of this kind, he feels satisfied that he has been dealing with a gentleman, and that he has made a new friendly alliance. The applicant also feels that if he ever has a chance to do this man a good turn, he would give him the best results available.

There is everything worth while in this world in the making of friends. And neither the man looking for help nor the applicant looking for a job can afford to have enemies. A dissatisfied applicant is like a dissatisfied customer,—"he makes a poor advertisement for the firm," and no corporation, in these days, can afford to have poor advertising.

Another very important matter is that of both parties considering the correspondence or interview strictly confidential. It is bad practice to reveal the private business and movements of either party. For example, a man heard there was to be an opening for a superintendent's place, and he immediately sent his application to the corporation official. When the applicant's letter was received, he foolishly turned the letter over to his superintendent. A few days later the author of the application received a letter from this superintendent, stating that "there was no vacancy" at his mill, and that he was "not in need of an assistant."

It would have been much better to have avoided this embarassing situation. The applicant had no intention of injuring the man who had no intention of leaving this plant as superintendent. This mill official was not diplomatic. It would have been much better to have thanked the applicant and stated to him that the present incumbent was giving entire satisfaction and that no change was contemplated.

Another consideration should be extended to the applicant when an interview is required. He should not be expected to leave his work for an extended trip, and for a long interview unless it is fully convenient. Some men have been greatly inconvenienced in this way, and even have lost their present positions when employed by unprincipled men. The interview should be arranged for some Saturday afternoon, or evening.

An employer should recognize that a high grade man in his employ is apt to receive offers, and in all fairness to him he should be liberal in his attitude toward his movements. Some employers enjoy the confidence of their men so closely that when one of their men is offered a position, he will take his employer into his confidence and ask for his advice and the privilege to go and look at the job. The employer's duty in a case of this kind is to meet the situation fairly. If he wants him more than does his competitor, and can afford to meet the terms, he should do so. On the other hand, if the man is bound to leave, the employer should at the least express his regret at losing a good man, and make it agreeable in every way so that he can give his man an honorable withdrawal of his services.

The man who is leaving a place must do so with great care and good judgment. He should never abuse the mill or the officials, and the position which has harbored him so well. He should give a satisfactory notice and leave the position in the best possible shape for his employer and his successor. When people part company in this amicable way, there are no regrets and it often occurs, too, that the same men come back into the same old relationship again, greatly to their mutual benefit.

In other words, it should always be remembered that the best way to prosper one's own self is to help the other fellow in or out with good grace. The reverse is also true—that the easiest way to injure one's own self is to hurt the other fellow—like a boomerang the hurt surely comes back to roost at some unexpected moment.

A very good way to do when a large number of applications are received, rather than to raise false hopes, or to throw down all applications excepting the successful one or two which come up for consideration, is to send out a very polite pointer to the men whose applications can

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not be considered, which gives them a chance to *withdraw* their applications, and which a man with good judgment will do if he gets a pointer. The advantage of this is that good men are relieved of further anxiety in the matter; also that it takes away the feeling of having been "turned down."

Some mail good statements, like the following: "We have already received so many applications, that we regret our inability to consider any more," or "we may not be able to consider yours, etc," or "we have already practically decided upon a man," or "your application comes too late," —any true statement which can be kindly made and which honors the applicant rather than gives him a cold "turn-down-and-out-blow" is by far the most creditable way out of the situation.

The whole problem can be sifted down to this basis, that it is as honorable for good men to look forward and try to reach higher places in an honest way, as it is for good men to seek the services of other good men. And both parties deserve to be treated with the full code of honor.

Here are a few things which an honest seeker for promotion will not do:

He will apply only for such positions as he would gladly accept if the terms given are satisfactory.

He should really desire the position and want to keep it if he secures it.

He should not apply at random for questionable jobs.

He should never apply for a job "just for the fun of it."

He should never apply for a job hoping to secure the offer of same in order to get his pay raised where he is.

A job should not be accepted without a thorough understanding as to what service is expected, what the salary is, the hours of labor and all general particulars fully understood.

Having accepted a position, the applicant should expect and determine to carry out the contract and fill the place as required. He should remember that there are "outs" about every situation, and that he must override and make the most of all the objections existing.

The man who has a place to offer should guard himself from some very embarrassing situations. For want of tact and the securing of the actual facts with reference to the applicants, it often occurs that the man who should have been engaged is turned down. Therefore, some of the following precautions should be considered:

Do not turn down a man because he is over 40, 50 or 60 years of age. Some men are actually younger in action at these ages than men under 40. And their valuable experience and good judgment is often worth a great deal more than the amount of hustling they can do. A large concern, some years ago, were out for a young man. An applicaion was received from a man over 60. At first he was turned down. But he proved his fitness. They went after him this time. They got him, and his work proved to be of supreme value to that plant. He is still on the job and filling the place o. k. It is not the age, but the manner in which men grow old which counts the most.

Look out for the young man who is apparently too young. He may have an old head on his shoulders, and be ahead of his day.

It is well, also, to look out for the applicant's handwriting. A good hand and a perfect letter may mean that the applicant is only a book-keeper. While the illiterate writer may after all be a very competent man. It takes a master mind and the facts in each case to decide wisely, as the reverse might also prove to be true.

In New England, history proves that two cotton mill men who were very illiterate, made great success in the management of their mills. One of them could not get satisfactorily located because his letters always went into the waste basket. Finally he raised capital through his friends and built one of the best yarn mills in the world. He also built one cloth mill. His yarns were of such a superior quality that the competitors who had given him the cold shoulder had to seek another market. His hobby was to double card his cotton.

Beware of the big mistake of turning down the man who has always worked in one place, or the man who has worked in many mills. The former needs a change, and will work hard to prove worthy of it, if he is the right kind of a man. The latter man has had the varied experience so often required, and under proper management he will settle down and make many valuable improvements.

It is unwise to judge of ability by the dress. One of the most successful superintendents in Fall River responded in person as an applicant for a mill there. He was very poorly dressed and not up in style in any particular. He was accepted, and made a great success of his work.

The man who has a large number of recommendations may not have so much ability as the man who can not get any. A man applied for a job and when asked for his references, he was obliged to state that he had just been discharged from the only place he had ever worked, and could not present any credential. He stated that his former employer told him he was "incompetent," but that he knew it was untrue. This man was given the job, and was soon worth $10,000 per year to his employer. At last accounts he was still holding down the job.

Another man who was discharged was given a job in a large textile mill and he is now one of its largest stockholders. It is said that being discharged was the best thing that ever occurred to him. Do not turn down a man because he was discharged.

Do not throw down a man because he is lame, cross-eyed or otherwise deformed. It is his stock in trade and he may carry the goods across in very satisfactory shape notwithstanding his apparent impediments.

Be patient with the man who has to borrow money to move to your mill. He may have extra heavy burdens to carry.

Be sure to give the married man first chance over the single man, as a rule. He comes first by all means.

Remember that the applicant who comes to be interviewed may be tired out and not at his best. He may have travelled all night and gone without sleep and meals in order to meet and keep his appointment with you. So do not turn him down because he seems dull or slow. It is better to meet the applicant more than half way. Take him to a good hotel and give him a good dinner while you talk to him. It is better yet to go and see him in his own town. You can stand disadvantages better than he can.

Give every man a fair hearing. Get at the root and

A Word About Appraisals and the Coinsurance Clause

THE COINSURANCE CLAUSE

As it appears in Your Policy

"In consideration of the reduced rate and form under which this policy is written, it is expressly stipulated and made a condition of this contract that in the event of loss this Company shall be liable for no greater proportion thereof than the amount hereby insured bears to eighty per cent (80%) of the actual cash value of the property described herein at the time when such loss shall happen, nor for more than the proportion which this policy bears to the total insurance thereon."

Losses by fire average over $750,000.00 per day.

ILLUSTRATION

YOUR 1917 VALUES	
Cash value of property insured	$100,000.00
Insurance carried 80 %	80,000.00
Loss by fire, 40% of property value	40,000.00
Insurance company pays entire loss	40,000.00
YOUR 1920 VALUES	
Cash value of property may have increased to	$200,000.00
Insurance carried may have been allowed to remain the same as in 1917	80,000.00
Loss by fire, 40% of property value	80,000.00
Insurance company, under 80% clause, will pay only 50% of loss	40,000.00
If insurance amounting to 80% of the 1920 value of property had been carried, the insurance company would have paid the entire loss	80,000.00

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Our appraisals are made by experienced engineers and builders who have intimate knowledge of present day material, construction and equipment values.

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Samuel M. Green Company

INCORPORATED

Engineers - Architects
Appraisers - Constructors

Building Design and Construction

Springfield, Mass.

the real facts in the case and weigh matters carefully. It pays to be fair with all applicants and give them the benefit of the doubt. Fairness. (R. I.)

Fire Rules and Practice.

Editor Cotton:

We can go into almost any plant and see posters in conspicuous places in every room telling what to do in case of fire. But are we certain that the employees have the idea that such rules are only cautionary and that the stopping of a fire depends upon the man who goes to the right place, and does his part in the right way?

In one plant we once had rules posted in the picker room, which was protected by perforated pipes and not by sprinklers. A fire occurred in the gas house where the oil gas was made. George, the master mechanic, put the pump on with the friction clutch without first stopping the water-wheels. The hose was laid and water was turned on the blaze. Kim, the carder, happened to see the hose and ran to the picker room. He forgot to try the valve and see if anybody had shut it, but turned the handle and seeing the water come over the cotton bin, he ran out and shut the main valve outside. This caused the force to leave the hose, the roof caught fire and before the water is turned on again by one of the repair men, the gas making was over for the day.

As the water was turned on again, the stream filled the hose and before anyone could grasp it the sudden rush of water wet the manager, the gas man and the men who were trying to pick the hose up. When Kim was called to account for closing the valve he said, "I followed the rules that said to always turn off the valve in the picker room first."

"But why didn't you try the valve to see whether it was shut or open?" he was asked.

"What was the use?" he replied. "Just as quick as I touched it the water went over the cotton."

In another plant, on every Friday, as approved by the "Mutuals," there was a fire drill. An electric signal gave the alarm all over the plant. George, repair foreman, sent the head of the protective department to give the alarm on one of the boxes—the weaving room box that day. The repair men laid the hose, connected the Siamese nozzle, taking two lines of hose, the men were posted and the city water was turned on. The rules were all followed, every man present was in his place. The force of the water filled the hose and the men were thrown all over the yard. It took nearly an hour to straighten things out and by that time it was twelve o'clock and the men went home, and were paid for the fire practice.

Were the rules at fault? Yes. There were three men out that day among the different squads which were called to attend fire practice. The master mechanic had not checked up his squads, taking it for granted that there were enough men on hand. He went to the valve in the yard that controlled the city water pressure. There was a rule among the fire department men that only certain ones should open the city main. George was the one that was allowed by the rule to turn on the water.

It was very fortunate there was not a real fire as the consequences might have been serious. The manager changed the order of procedure before the next Friday's practice, insisting that the signal should not be given from the selected box until the word came back from the hydrants, where the squads were located, that all was ready.

Perhaps the mill employees are not wholly at fault in this matter. We had been arranging to put in a new friction pump in the No. 4 Mill; in fact, the pump was in the freight house and was to be put in the next day. The inspector from the "Mutuals" came to the plant to make pump tests. He went to the No. 3 Mill, had the pump started and was checking the pressure at the hydrant with his gauge.

"Not enough pressure," he shouted. "Put it on higher speed." The extra speed was given and a miniature water spout showed a bad leak in the pipe, caused earlier in the season by some rock blasting.

The inspector took off his gauge and started to the lower mill, stating that the pipe at No. 3 would have to be repaired. He put on his gauge at the lower mill and told them to give it more speed, that the pressure was not up to standard. The master mechanic said that he was doubtful about the gears holding, and advised that the new pump which had been ordered had been received and was to be installed the next week.

"More speed," the inspector reiterated, "the pumps have to show the standard, and this is worse than the one at No. 3."

More speed was given and all at once the gears flew to pieces and all the fire protection was useless. All the inspector said was, "It's up to you now to see that the new pump is put in at once."

However, we learned from another manager that the inspector said, "That company up the road has been pretty slow about putting in adequate fire pumps, but I fixed them yesterday. They have no pump at all now and will have to get busy and put in the new one."

Maybe the rules are necessary, but it is a good idea to make the fire practice, that the insurance companies rightly require, a sporting test with the rewards that such tests bring—to give the men that are getting paid for going through it the opportunity to show what they would do if there was a fire, and not practice by rule. Let the plan, as we have tried, be something not on the printed schedule. Have no cut and dried way of attaching the hose to the main. Let the number of streams be made up on the moment of practice. Let the squads that are called get their own hose and spanners and leave all the details to them.

Instead of having a lump sum, equally divided for the reward of the practice, give each man so much for the time, but have a purse worth earnest endeavor to be given to the man or the squad that makes the best time and has the best arrangement for putting out the imaginary fire. Give talks to the squads, paying them for the time thus taken and reward the man or squad that holds the best all around record of excellence for the season with a badge or medal.

Make the rules only a necessary adjunct to the making of a valuable fireman and a worth while department. Make your mill fire department as good as the time and chance they have for practice permits. And when the fire does come, whatever the loss therefrom, you will know that all that could possibly be done on your part was done and that the plant will have nothing of which the insurance company can complain. A. H. G. (Conn.)

Many men never know just how much they are capable of doing until they investigate along that line.

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STOP!--using bleaches that hurt the goods and hurt the workmen.

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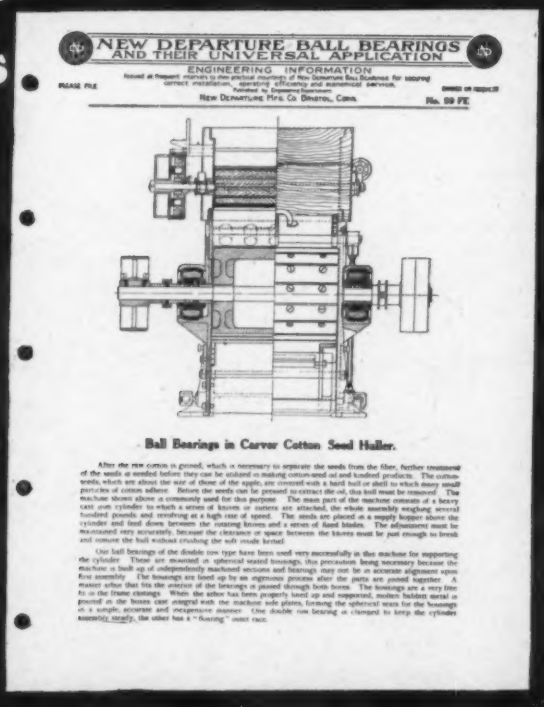


NEW DEPARTURE BALL BEARINGS AND THEIR UNIVERSAL APPLICATION

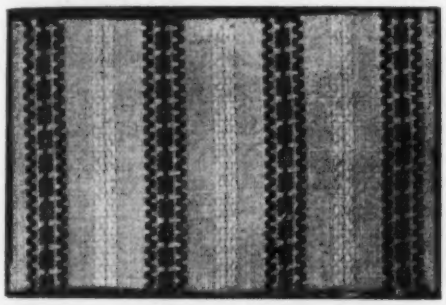
ENGINEERING INFORMATION

Ball Bearings in Carver Cotton Seed Huller.

Some Cotton Fabric Designs.

BY J. W. K.

Design A is an effective stripe for cambric shirtings. The cloth is made up of two counts of yarn, the white matting and blue matting being 22s counts and the other portion 32s. The whole matting effect gives a corded effect on the white ground and gives a tone to the whole pattern. Stripes of black, navy, green, lavender, salmon,



PATTERN A.

primrose, etc., make very stylish and effective patterns. The warping and denting pattern follows:

16 threads white	= 8 dents	= 32s counts
6 threads white	= 2 dents	= 22s counts
2 threads white	= 1 dent	= 32s counts
6 threads white	= 2 dents	= 22s counts
16 threads white	= 8 dents	= 32s counts
6 threads navy	= 2 dents	= 22s counts
2 threads white	= 1 dent	= 32s counts
8 threads navy	= 4 dents	= 32s counts
2 threads white	= 1 dent	= 32s counts
6 threads navy	= 2 dents	= 22s counts
—	—	
70 threads and	31 dents per pattern	

If the full design is read from left to right it will correspond with the warping pattern given. The drafting plan is shown beneath and the dobby plan at the right.

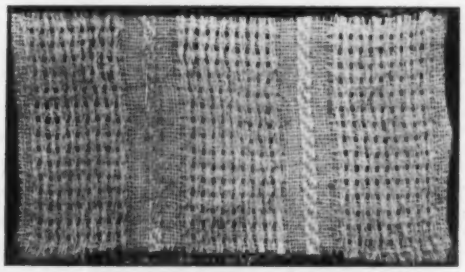
The cloth is generally made about 32¼ inches in the reed for a 30-inch cloth. The particulars are: 40 dents per inch, 2 threads and 3 in one dent, 32s and 22s Egyptian warp, 80 picks per inch, 32s Egyptian for the filling. Allow 73 yards of warp for 68 yards of cloth. 40 dents per inch × 32¼ inches wide = 1290 dents total width. 1290 ÷ 31 dents per pattern = 41 patterns plus 17 dents for selvage.

To find the total number of threads in the warp, multiply the number of each kind of yarn by the number of patterns, adding to the 22s, the number of threads for selvage. 46 (32s) × 41 patterns = 1886 threads. 24 (22s) × 41 patterns = 984 + 34 selvage = 1018 threads. Add these two together to secure the total number of threads in the warp. 1886 threads + 1018 threads = 2904 = total number of threads in warp. 1886 × 73 ÷ 840 × 32 = 5.12 lbs. = total weight of 32s. 1018 × 72 ÷ 840 × 22 = 3.91 lbs. = total weight of 22s. 5.12 lbs. + 3.91 lbs. = 9.03 lbs. = total weight of warp.

It will be noticed here that in the calculation for the weight of 22s one yard less is reckoned for length. This is explained by the difference in counts and weaves. During dressing the coarse threads would be put on the weaver's beam tighter than the fine threads, so as to improve the weaving and dispose of a small beam.

The filling is all one count. The method of finding total weight for the 68 yards of cloth is as follows: 80 picks per inch × 32¼ inches wide × 68 yards of cloth ÷ 840 yards per hank × 32 counts of weft = 6.52 pounds of weft.

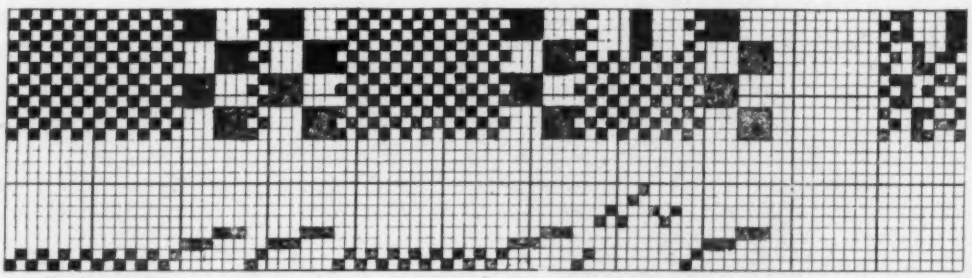
9.03 lbs. (weight of warp) + 6.52 pounds (weight of weft) = 15.58 pounds = total weight of warp and weft.



PATTERN B.

To find the number of yards in one pound of cloth, divide the length by the weight. 68 yards of cloth ÷ 15.58 pounds = 4.31 = number of yards per pound.

Design B. This style is often used for ladies' dress goods, etc. It is cool wearing on account of the perforations caused in the weaving. The open work is called "mock-leno" and is made by leaving an empty dent between each four threads in that particular part of the pattern as will be shown. Two other weaves are woven in the pattern, plain and twill, which is for mercerized yarns. In various colors of mercerized stripe, salmon, light green, old gold, light pink, etc., the pattern is very effective. The warping pattern is given below:



DESIGN A.

8 threads white	= 4 dents	= 32s American Ring
8 threads white	= 2 dents	= 2/40 Mercerized Egyptian
8 threads white	= 4 dents	= 32s American Ring

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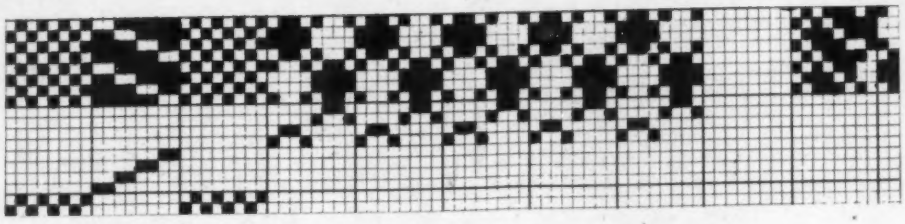

DESIGN B.

40 threads white = 19 dents = 20s American Ring
— —
64 threads and 29 dents per pattern.

Read the full design from left to right to correspond with the warping. The cloth is generally made 34 inches in the reed for a 32-inch cloth. The particulars are: 32 dents per inch, 2 and 4 threads in 1 dent, 32s, 2/40s and 20s warp, 44 picks per inch, 16s rove for the filling. Allow 64 yards of warp 20s and 2/40s and 68 yards 32s for 60 yards of cloth.

The 32s must be placed on a small separate beam so as to insure good weaving.

32 dents per inch × 34 inches wide = 1088 dents in total width. 1088 ÷ 29 = 37 patterns plus 15 dents for selvage.

To find the total number of threads in the warp, multiply the number of threads of each kind of yarn by the number of patterns. Add these together, adding the number of threads for selvage with the number of 20s. Thus: 16 (32s) × 37 = 592 threads. 8 (2/40s) × 37 = 296 threads. 40 (20s) × 37 = 1480 threads + 30 (selvage) threads = 1510 threads. And 1510 (20s) ÷ 296 (2/40s) + 592 (32s) = 2398 = total number of threads in the warp.

To find the total weight of the warp: 592 (32s) × 68 ÷ 840 × 32 = 1.5 pounds. 296 (2/40s) × 64 ÷ 840 × 2/40 = 1.12 pounds. 1510 (20s) × 64 ÷ 840 × 20 = 2.87 pounds. 1.5 lbs. + 1.12 lbs. + 2.87 lbs. = 5.49 lbs. = total weight of warp.

The filling is all one count and may be found thus: 44 picks per inch × 34 inches wide × 60 yards of cloth ÷ 840 yards per hank × 16s counts = 6.67 pounds of weft. To find the total weight of the warp and weft, add the separate weights. 5.49 lbs. + 6.67 lbs. = 12.16 lbs. = total weight of warp and weft.

To find the number of yards per pound, divide the number of yards of cloth by the weight of the yarn: 60 yards ÷ 12.16 = 4.9 yards.

All the hosiery worn by the members of the company now playing Cinderella on Broadway at the Winter Garden, was dyed by N. C. Merkle, 121 West 52d Street, New York City, and all the dyes used were "National" colors made by the National Aniline & Chemical Company, Inc., of New York. This is evidence that American dyes are being produced of entirely satisfactory quality and brilliance of color.

It is announced that the engineering business formerly conducted under the name of J. E. Sirrine will hereafter be known as J. E. Sirrine & Company. There will be no change in either the policy or the personnel of the organization, it is stated. The headquarters of this organization are in Greenville, S. C., while New York offices are maintained at 331 Madison Ave.

Scientific Methods of Belt Joining.

Among the recent bulletins and booklets on better belt service issued by the Service Department of the Crescent Belt Fastener Company, there is one publication which will be of particular interest to all readers of COTTON.

This new Crescent circular entitled "Modern Scientific Methods in Belt Joining" contains practical belt-joining data for the practical belt-joining man. This information is of value to anyone interested in belt upkeep and it is so designed, that when opened up and tacked to a wall, it presents on one page full information for joining the belt to insure its best service.

The instructions as to how to make belt joints which retain the belt's full strength and assure its longest life are given in simple and concise language and are amply illustrated. The larger illustrations show in full size the outside and pulley sides of Crescent joints. A cross section illustration shows how a belt can be joined without weakening it. It also shows how the Crescent method avoids metal coming in contact with the pulley and thereby eliminates noise, wear and crystallization. Copies of this circular will be sent to any readers of this publication to whom it may be of interest. Address Cotton Manufacturers Service Dept., Crescent Belt Fastener Company, 381 Fourth Avenue, New York.

Rundle-Spence Manufacturing Co., 63 Second Street, Milwaukee, Wis., is sending out a new 74-page drinking fountain catalog. The descriptions, price lists, etc., of these articles are prefaced by three pages of matter relative to slant stream fountains and their advantages. Statements from eminent authorities who have conducted thorough tests of drinking heads are given and the general opinion of these experts would indicate that fountains from which the water is emitted through a slanted valve rather than a vertical one are more sanitary and convenient. It is stated that in the slanted valve type the stream is inclined enough to prevent water falling back upon the nozzle after it has touched the drinker's lips. This type also obviates the necessity of a separate valve for drawing water to fill a glass or cup which is a great convenience in offices, factories, etc. Another feature is that the practice of "squirting" by mischeviously inclined persons is practically eliminated because of the location of the nozzle on the bottom of a walled-in recess. Also because of this well or recess feature it is almost impossible for the nozzle to be touched with the lips. The catalog supplies complete information as to the equipment included with each of these fountains, specifications, prices, etc. Copies of this booklet can doubtless be secured upon application to the company issuing it.

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A Foreman's Responsibility and His Opportunity.*

BY W. C. MCMANN.†

My particular theme, "The Responsibility and Opportunity of a Foreman," is a subject that has always been dear to me. If in my talk today I do not accomplish any more than emphasize facts that are probably already well known to you, if I do no more than to stimulate interest, I shall feel that I have not spoken in vain.

I note that in the program I am mentioned as "overseer." I never did like that word—it reminds me too much of those Egyptian overseers who used the whip on the Israelites, the name "foreman" is so much better. Just drop the "e" in foreman and we have the name expressing what we should be: "for-man."

Gentlemen, I would ask you to go back in your memories some 20 or 30 years. I expect there are some here who can, and see the picture of a model mill village, nice little mill, quaint little homes, well-kept lawns, always the village church in prominence, and the mill manned by a president who was in close personal touch with all his employees, from the superintendent and the foreman to the humblest sweeper.

These mills had their standard lines, practically no competition, with the consequent result that the president had the opportunity to learn his people and know them personally.

It was a familiar scene to see the president stopping an employee with the greeting: "John, I understand your Mary is ill, hope she is improving," or, "Jim, I missed you in church yesterday."

Now follows another scene. Business conditions have changed, competition has become keen, additional mills have had to be erected to take care of the ever-increasing trade, more labor has had to be secured and the president's time is now fully occupied in following up the ever-changing market and his customers' demands.

The superintendent's time is taken up in attending to improvements and building and managing, etc., and the employees no longer hear the "Good morning, John, how is Mary?" or "Jim, I missed you from church." The employees—the human element, the vital force in industry, have been left to the influence of the foreman. Has it been a good influence? In some cases it has, and in many cases it has not. We shall see.

The heads of our industries have realized that in the struggle for financial supremacy they have overlooked the human element in their mills and are today proving by their deeds their renewed friendship and interest in their employees' welfare, and thank God, not from a selfish motive.

What do these comfortable homes, fine institutions such as schools, clinics, welfare departments, nurseries, dormitories, Young Men's and Young Women's Christian Associations, etc., mean, if they do not speak of the new vision caught by the employer?

A few years ago a foreman's worth was measured by his practical experience in production of material, how to make the product in quantity and quality. The human element was overlooked. Today, the prospective foreman—if he is to reflect the ideals and wishes of his company—must be prepared to answer the question, "What is your moral fitness?."

If I should make the statement that the foreman was responsible for all the industrial unrest or dissatisfaction between capital and labor, you would class me among the fools or fanatics. I have no such assertion to make, for were I able to locate the trouble which has puzzled some of the brightest minds of the industrial world, I would not be here today speaking as a "foreman."

However, I am going to make a statement that I can back up, and that is that the foreman has his share of responsibility to account for in that unrest, and can either help or retard the splendid effort now being put forth by our industries to make a better feeling, a closer contact and a better understanding between capital and labor.

I do not hesitate in saying that had the foreman been properly trained for the position he holds—for he indeed holds a unique position and a very responsible one—had he been trained, a great deal of this misunderstanding would never have appeared to mar the relations between employee and employer.

Education, religion and morality were traits that were not always questioned in the past in placing a foreman in charge of a department in our industries, with the natural result of a lack of these traits being common among employees. When we consider that the people, the men, women, boys and girls, who work in our industries come into closer touch with the foreman than with any other agency of the organization, it is but natural that their estimation of the organization is sized up by what the foreman is. It is here that the foreman's responsibility begins.

A foreman has a unique place in industry, he has a double responsibility, for, while he is directly responsible to the management, while he is the company's "right hand" with the company's interests his interests, he also has a moral responsibility for the training of the young men and women placed in his care. It is said that our teachers hold the destiny of our country in their hands. A foreman in industry holds the same relation to his help as a professor in a college to his students.

The students are the workers, they work on tasks assigned by their teachers and are graded by their capacity for learning and faithfulness to duty. The professor is their leader and the success of a teacher depends on his qualities for leadership, not the least of which is his character.

Just so the foreman has the opportunity of becoming a real leader. His department is his class, his machines are his books, relations may be moral or immoral and both discipline and inspiration are necessary qualifications of the foreman who is a real leader. As the teacher he holds the destiny of his younger employees in his power, or he loses their confidence and their effort for production and coperation.

Is it not fitting that when the young man or young woman leaves school, that the industries continue the good work and through their foremen instill in the minds of the employees, by example, the traits of loyalty, justice, etc.? We, as parents, put our children in schools that we know

*Address delivered before the Industrial Conference at Blue Ridge, N. C.

†In charge of the Bleachery and Sheet and Pillow Case Department, Dan River Cotton Mills, Danville, Va.

to be manned by teachers of high moral purpose and mental ability. Do you think parents will not place their young sons and daughters, starting on a new career in industries where the foremen are known to have built up a name of high standards of moral excellence? And, will they not hesitate in placing them with a company and under the influence of foremen who have not been educated to that high standard?

It is here that our industries benefit by having the right type of foremen, for let it be known that the present foreman of a department in any industry must be a man of high moral traits, one who practices the virtues of kindness, justice and loyalty and in any department having such leadership you will find a department that has no trouble in keeping a full complement of the best of help and no labor turnover.

On the other hand, a foreman who does not practice kindness, etc., and who treats his help with indifference and speaks slightingly of his company will not only in a very short time have a department of disloyal operatives, but will be the direct cause of the operatives applying elsewhere for postions and the industry will suffer, not because of anything done by the company, but by the bad influence of a disloyal foreman.

The large labor turnover in so many industries very often can be traced directly to the foremen who either have not been educated, or refuse to accept the high standard required of them today. A foreman may be an expert in his particular line, his reputation as a producer from a material standpoint may be known far and wide, but today, if he has not the qualities of leadership from a moral standpoint, he does not measure up to the present day demand.

A foreman's responsibility from a human standpoint is only equalled by his opportunity. If he will realize his responsibility and grasp his opportunity the industrial problems of today will soon be far less acute. A foreman's greatest opportunity lies, as I have said before, in the fact that he is in such constant touch with the human elements in industry. If he will treat his help with consideration, encourage them, let his firmness be tempered with kindness and justice and, above all, follow the principle laid down by the greatest of all teachers and "Do unto others as you would have them do unto you," then his influence would be unlimited, then would the foreman be filling his double responsibility of serving his company and serving his God.

I have tried in my limited way to show the responsibilities and opportunities of a foreman, but I would not feel justified in closing my address without saying a few words to the heads of our industries as regards their relations to their foremen.

I would appeal to them for a closer relationship to their foremen, for a better realization on their part of the fact, as I have said before, that their foremen are their "right hand."

I have said that I did not propose to give a solution that would remedy labor troubles, but I do say that all the efforts now being put forth by the heads of our industries will not amount to very much if the foreman and the managements do not have the same lofty ideals and a complete spirit of cooperation.

Industrial democracy and all other forms of promoting better relations in industry will not amount to more than a "sounding brass and tinkling cymbal" unless the managements and foremen are united in perfect harmony.

If you will pardon my speaking of the corporation I represent, I will say that our president realized the truth of this fact, and the fruits of his placing before the foremen his ideals and ideas, the many heart-to-heart talks and conferences and his firm conviction of the necessity of educating his foremen, has been proven by his signal success in the wonderful results attained in our organization now being run on the plan of industrial democracy.

I wish to leave today a challenge to the foremen of our industries to grasp this opportunity to do bigger things, to use our influence to bring about a condition in our industries that will appeal to the better element of our people that they will feel proud to be workers in our industries. The whole industrial world is looking to the foremen today and expects, and rightly demands, their cooperation. Our industries have given us every opportunity to learn to better fit ourselves for our positions and by our fruits we shall be known. Will you accept my challenge? Will you lift up and keep up this great factor in industry which has been placed in your care?

The Universal Counter.

The Precision Machine Company of Milwaukee, Wis., are placing on the market a new counter for textile mills to which they have given the name "Universal." This counter was designed by a man thoroughly experienced in counter manufacture, having been connected with the plant of a well known counter manufacturer for several years. With this expert knowledge at hand he invented the present counter which is designed to rectify all the shortcomings he ever found in any other counters during his years of experience.

One of the features of the Universal counter is that the essential parts are of steel, heat treated, hardened and polished which enables the device to stand up under high speed. It is also claimed for this counter that its number wheels are locked except when it is counting so that it is absolutely reliable and will not count more than one in each operation. It may be used as a stroke counter or a revolution counter. All number wheels are alike and interchangeable. The counter may be taken apart and reassembled by anyone with the use of a screwdriver, but the counters may also be sealed with locks so that operatives can not monkey with or change them.

These counters are made in two types, one to reset with a thumb knob and the other in a non-resetting type that cannot be changed without removing the cover.

Industrial conditions in Hongkong during the past year were not particularly satisfactory. Shipyards were busy at good rates and sugar refineries did well, but most of the comparatively small industries were not so successful. Knitting factories have had a hard time as a result of the high value of silver which has made it impossible for them to compete with products manufactured on a gold basis, and some of them have closed down. Canning and preserving factories have been hampered by the scarcity of supplies and the high price of sugar. Boat builders, and, in short. all lines of industry have felt the results of high exchange.

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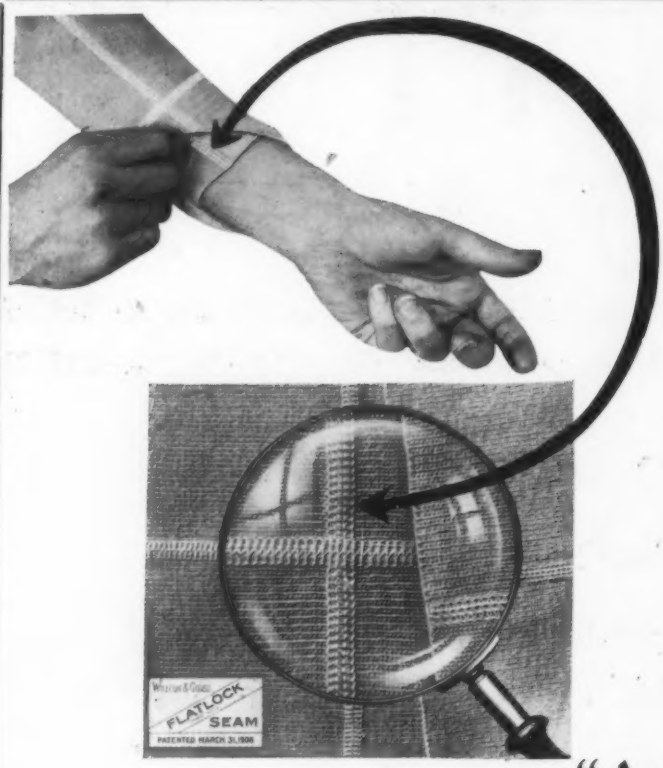

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Yarn Stop Motions

BY G. R. MERRILL.

Stop motions have been designed to apply to many knitting machines, but those most commonly used are applied to circular ribbers. These motions are used to stop the machine when the yarn breaks or runs out, when it is under too great a tension, or when there are knots or bunches in it. Another type of motion stops the machine when the cloth runs off the needles or when there is a bunching up of the yarn on them.

For the small circular ribber of one feed, there is a stop motion made, of which a diagram is given. This stop motion stops the machine when too great tension is exerted on the yarn or when the yarn runs out. This tension may come from poor packages of yarn, or may be the result of a knot or bunch in the yarn, being gripped by the device. Another portion of the mechanism is supported by the yarn in such a way that, when allowed to drop, it stops the machine.

The yarn is first guided through a round hole in a small circular plate. The size of this hole may be changed for different yarns and should be such that the yarn runs very freely through it, whereas, a knot or bunch in or on the yarn should catch on the edge of the hole and cause sufficient tension to stop the machine. If the knot or bunch does not have trouble passing through the plate it should cause no trouble in knitting.

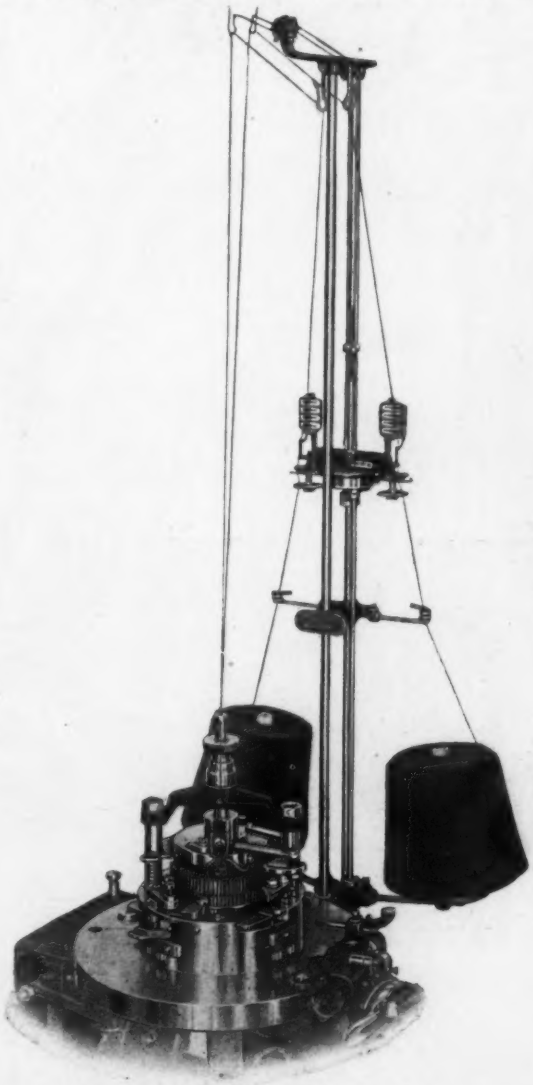
The yarn next passes between the jaws of a pair of shears. These shears are actuated each time the stop motion works, in order that the yarn may be cut at that point, to allow the machine the fraction of a turn before it stops and not break the yarn. Since the tension originates at the plate preceding the shear, it is immediately relieved when the yarn is cut. If this relief was not provided for in some way, the yarn would probably be broken at the yarn guide, thus making a hole in the cloth because the machine cannot be stopped instantaneously.

The next device, through which the yarn passes is a series of fingers supported by the yarn, in combination with a small grid. It is quite evident that if the yarn breaks or runs out that these fingers will drop. On the same stud and fast with the finger support is a short projecting arm, which, when the fingers drop, strikes a catch and releases a spring thus actuating the stop motion. A slight variation in the tension on the yarn may be made at this point by passing the yarn behind any number of the fingers.

From this point, the yarn passes first over a stationary guide and then over a movable one. This movable guide controls the heart of the mechanism, for here the tension is exerted which causes the motion to work.

This guide should be as nearly over the center of the cylinder as possible. It must, because of the design be a little to the right or left of the center, but from front to back it can be quite accurately located. As the yarn runs over the guide, it produces a pull downward on it. The opposite end of the guide rod is fast in a small block, which is pivoted near its center, and connected to two wire rods. The first is nearly horizontal and the second is vertical, being under the control of an adjustable spiral spring. At its lower extremity it is bent hook shaped to pass under the opposite end of the same catch which the finger device operates. As the yarn draws the movable guide down, the action is transferred to the two wire rods. The tension of the yarn is opposed by the spiral spring, so that the tension must be great enough to overcome this opposition before the wire rods are moved more than a very slight distance. When, however, the tension does overcome the opposition, the vertical rod is drawn upward, the hook at its end strikes the catch, releases the spring and actuates the stop motion.

It is very essential that some change be made to adjust the opposition of the coiled spring on the vertical rod, because the same adjustment will seldom be satisfactory for two different yarns, unless they are very near the same size and material. For this reason, the upper end of



A Single Feed Stop Motion as Applied.
Courtesy Wildman Mfg. Co.

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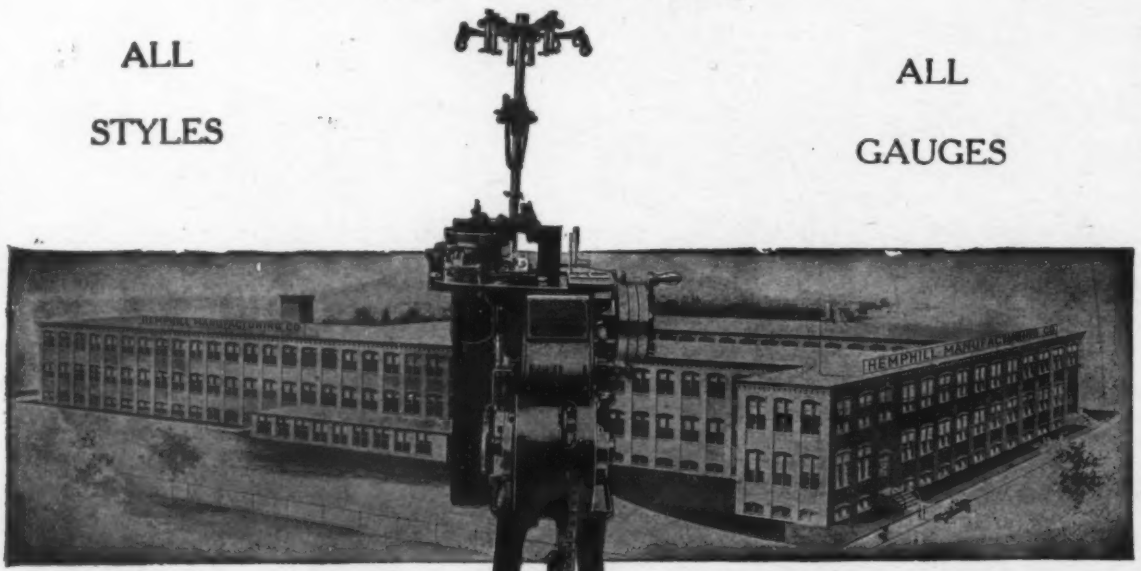

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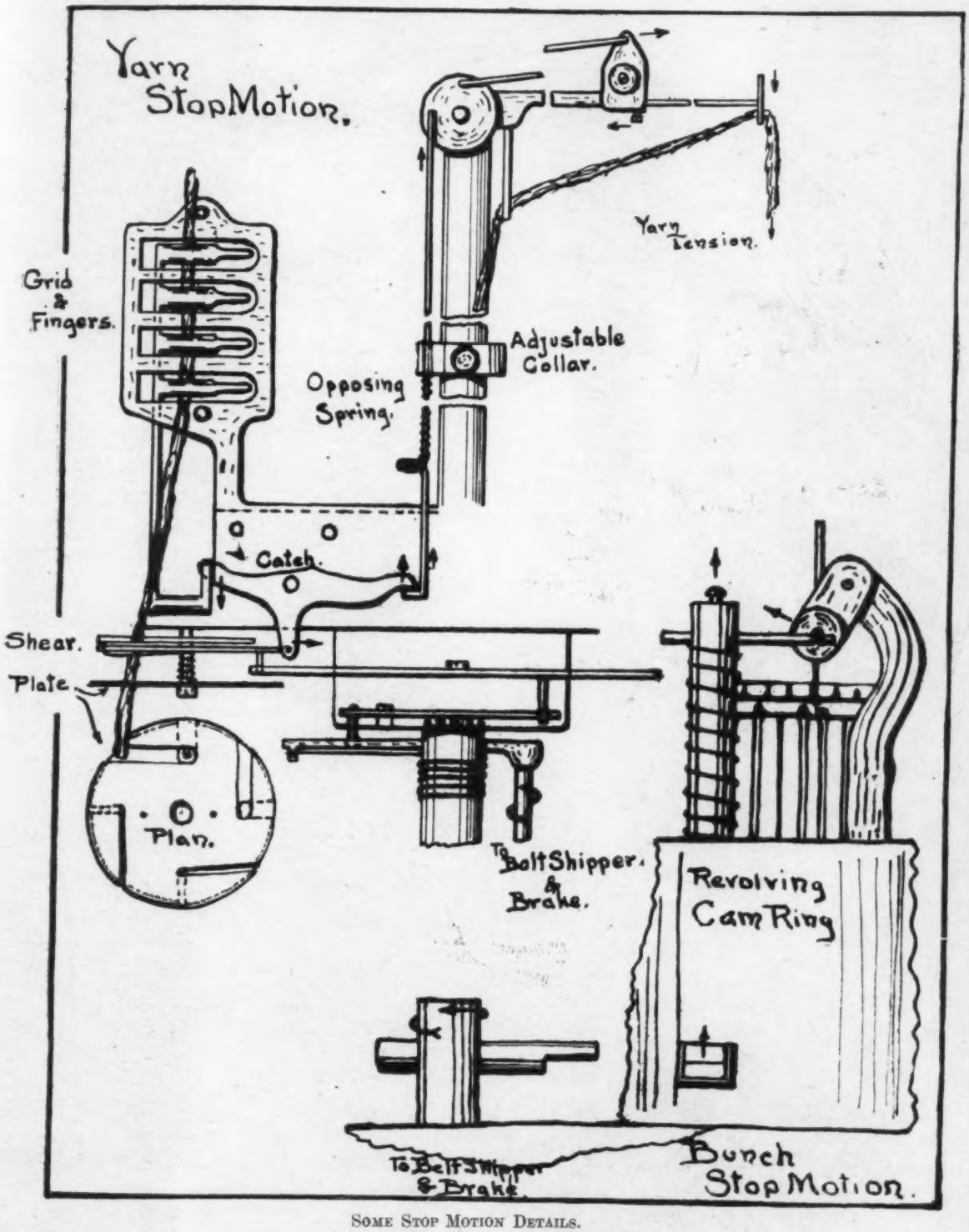


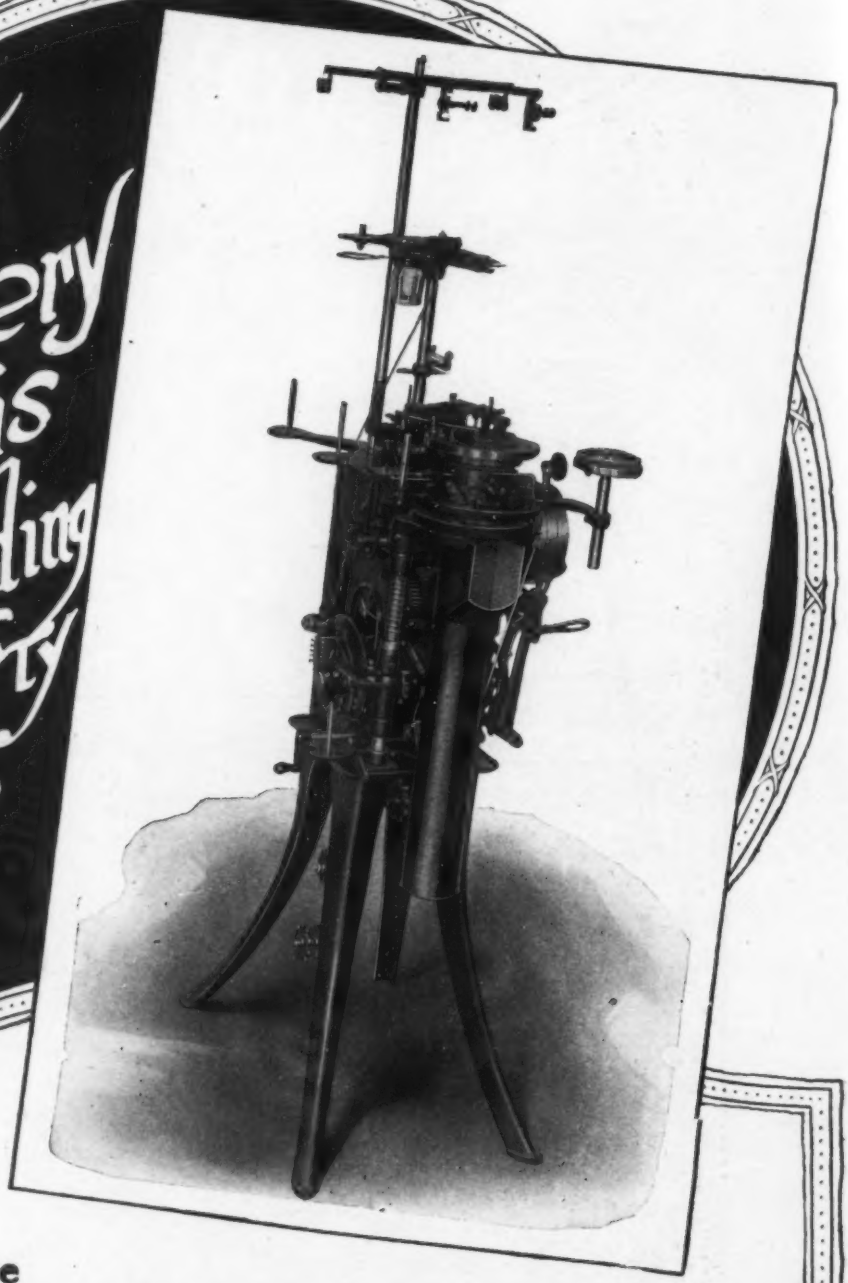
Some Stop Motion Details.

the spring is held by a movable collar, which either compresses the spring or allows it to expand. The greater the expansion of the spring, the less is the yarn tension required to actuate the stop motion.

The catch, which is actuated from the fingers and the movable yarn guide, holds a lever acted upon by a spring under tension. This lever is the movable jaw of the shear and has projecting down from one end a pin, which acts upon another lever to release the spring and so, finally throw the belt to the loose pulley and put on the brake. When the catch is moved by either of the sources spoken of, it swings about its pivot and allows the shear jaw to close (forced by its spring). The pin on this jaw strikes the lever just below, which trips the spring to shift the belt and apply the brake.

As has been said, the adjustment of the force neces-

The Hosiery Buyer is Demanding QUALITY



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sary to cause the stop motion to work is made at the spring on the vertical rod. The spring may be allowed to expand until there is practically no resistance to the tension of the yarn and the machine will be stopped as soon as it is started, even with a very small yarn tension. Then the collar may be lowered, thus compressing the spring, until the resistance is such that under the ordinary yarn tension the stop motion will not work. However, when the yarn tension is slightly increased the force it creates should be enough to "set off" or trip the stop motion.

Another stop motion, on this type of a ribber, is used to detect bunches of yarn on the knitting needles. This is advantageous because when the yarn has bunched up on one or two needles (because of a broken needle, a bunch, a knot, or some unapparent cause) the device detects it and stops the machine before a large portion becomes "bunged up."

This stop motion consists of a needle point, which runs close to the cloth on the two sets of knitting needles, which is held on a short swinging arm. A post, close to this arm, which is forced upward by a spiral spring, has projecting from it a rod having near its end an encircling groove. When the post is forced down, a projection from the swinging arm fits into this groove and holds the post down against the pressure of the spring. Fast to the lower end of the post is a projecting arm, which, when the post is forced down, just passes under a finger connected to the belt shipping device mentioned in the foregoing section.

When the yarn bunches up on the knitting needles, it catches on the needle point. Since the knitting needles and the cloth are stationary and the stop motion details are mounted on the revolving cam ring, the bunch catches the needle point and pulls it until the swinging arm is drawn backward and upward. This releases the post and it immediately springs up as high as possible. In this position the projecting arm strikes the finger which throws the belt and puts on the brake.

The proximity of the needle's point to the yarn held in the knitting needles may be changed. This allows a change necessary for different stitches and yarns, and makes it possible to set the device so that a very small bunch on the knitting needles will cause the machine to stop.

The Knit Goods Market

While hosiery production is falling off by reason of mills being closed down entirely or operated on part time, exports continue in large volume, a combination that makes possible a tighter market when it becomes necessary to build up depleted stocks and provide for future needs. With the single exception of March last, May recorded the heaviest exports of cotton hosiery since January 1, 1919, foreign countries taking 1,392,259 dozens, bringing the total for the first five months of the year up to 6,287,647 dozens, which was more than two-thirds of the aggregate for 1919, the figures for that year being 9,477,374. If this year's average be maintained for the remaining months, which seems not improbable, there will have gone out of this country in 1920 more than 15,000,000 dozen pairs of cotton hosiery.

It is true the exports in May were contracted for some months before, when domestic buyers were less hesitant. It is true also that the heavier purchases last year for export were made during the Spring slump, and the quantities increased steadily as conditions here improved. So that it seems a strong probability that Europe and the Latin American republics will this year absorb twice as many dozens of American-made hosiery as in 1919. Supporting such a prediction is the fact that exporters, becoming more familiar with practices in foreign markets and to some extent driven to find new outlets while waiting for domestic business, will rapidly expand foreign business.

In any event, it is known that since May very large purchases of hosiery have been made for foreign account. In one week in July five carloads were shipped by express from Chattanooga, Tenn., to Philadelphia, where they were loaded on a trans-Atlantic steamer. George A. Harris, 165 Broadway, New York, who sailed on July 14 for London is but one of several salesmen carrying complete lines and offering them in England and on the continent.

While of the May shipments of hosiery from the United States 286,367 dozens went to England and 163,905 dozens to France, Cuba received 184,695 dozens, Argentina, 45,803; Dominican Republic, 15,863, and seven South American countries a total of 110,000 dozens, making nearly 375,000 dozens for the Latin republics on this side of the Atlantic.

Countries other than those mentioned to which more than 10,000 dozens of cotton hosiery were sent in May were Belgium, 19,277; Denmark, 22,291; Greece, 31,005; Italy, 30,669; Netherlands, 17,036; Norway 11,152; Roumania, 11,162; Sweden, 20,822; Turkey in Europe, 14,070; Canada, 28,354; Panama, 13,990; British India, 10,342; Turkey in Asia, 11,870; Australia, 138,016; British South Africa, 49,344; Philippine Islands, 19,090.

The official reports for May show a noteworthy increase in the exports of artificial silk hosiery—103,082 dozens, exceeding the shipments for any other month this year to April 1. Latin republics were among the larger takers, Cuba, 10,206 dozens; Argentina, 13,950, and Uruguay, 5,514. England took 40,816 dozens. Other countries whose receipts of artificial silk hosiery in May exceeded 2,000 dozens each were Denmark, France, Italy, Canada, Australia and British South Africa.

The invoice value of the exports in May was $4,628,184, cotton, and $1,026,577 artificial silk—nearly five and three-quarter million dollars worth of hosiery leaving this country in one month.

Spot cotton at the highest price ever recorded, this peak being reached in the dullest textile market within the recollection of the oldest operators, and textile mills going through a period of suspended operation with exports exceeding any previous figures, do not augur for low priced cotton hosiery or abundance beyond requirements when the voluntarily idle return to work at the highest wages paid in the history of the world. And as, according to a trustworthy trade publication, more cotton was consumed by domestic manufacturers this year up to July 15 than for the whole

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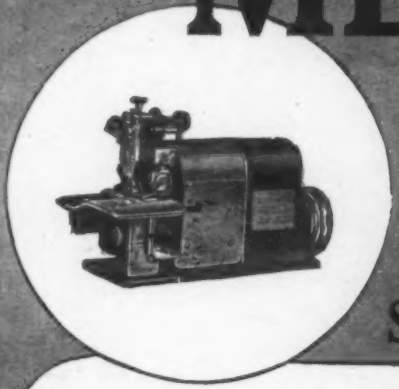

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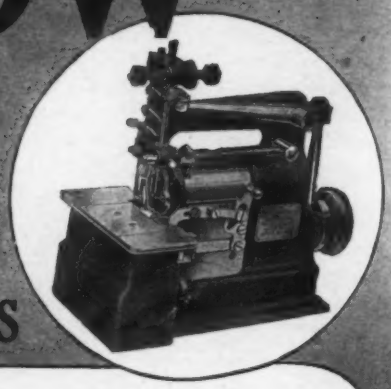

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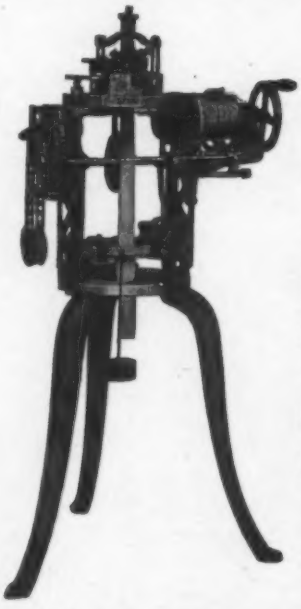

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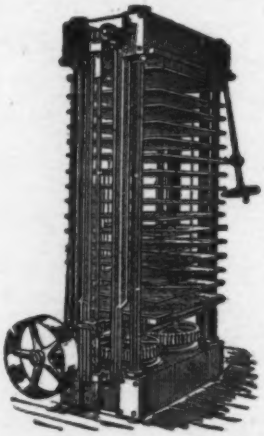

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of 1919, the outlook for a continuance of present low price levels for cotton yarns is not encouraging.

It is stated by the same authority referred to that in six and one-half months of 1920 as much cotton was exported as in either 1917, 1918 or 1919. And, to make matters worse for the cotton goods jobbers who are waiting for lower prices, the government says the cotton crop promises to be the poorest in a number of years. There always will be enough cotton and cotton hosiery, but the fiber and the fabric may not be available to manufacturer or distributor when most wanted.

Two mills are feeling out the silk hosiery market with new prices, and one is understood to be offering terms 2/10, 1/30, net 60, 30 days additional. A former $32.50 full fashioned stocking, 20 inch boot, mercerized top, heel and sole, is priced $21, for deliveries to December, the lower price to apply to goods still on order.

An 11 strand silk, 20 inch boot, is marked down to $17.50 and a 10 strand, 18 inch boot, to $16.50. These are prices for ladies seamless, mock fashioned, offered on terms of 3/10.

The new price on a line of silk half hose formerly sold at $14 is $10, for full fashioned, and $8.50 for seamless, formerly $12, both from the same mill. Another mill is quoting as new prices $8.50 for seamless silk half hose and $9.50 for full fashioned.

The lower prices have not been in effect long enough to afford opportunity for ascertaining how they will be received by jobbers. But it can be stated that to at least two important buyers they are not appealing. One of these received a delivery but a few days before the change in the list which applies to goods on order. Had this shipment been deferred one week, he says, it would have cost him $2,600 less. Another, having a considerable stock of silk bought at the high prices, says he will be hard hit. in that the lower figures will be so advantageous to distributors who were fortunate enough to get out before the slump that it will be difficult for him to move his goods except at a serious sacrifice. A number of jobbers, it is stated, will be similarly affected.

Many merchants would have preferred that mills refrain from naming new prices for some time, for helping them out of a tight place. It was their hope that they might liquidate their high-priced stocks before lower-priced goods reached the market. This was their idea in deferring purchases that cannot be postponed very much longer, jobbers say.

Silks, mercerized and lisle are the only classes of hosiery in which lower prices will be possible, according to several leading mill heads. Heavy cotton consumption in June is advanced by one important executive as his reason for believing cotton hosiery is as low in price as it can be while present conditions last, and he is not quite certain that mercerized yarn will not go to a level at which it will be impossible to offer hosiery at the figures of a few manufacturers. The prices of mercerized yarns, it is held, are named not by spinners or mercerizers, but by manufacturers, and so soon as these latter have gotten through selling, it will not be possible to buy at the figures at which they have been willing to part with their yarn. It is pointed out, in support of this proposal, that combed ply yarns in fine counts cannot be produced at a cost as low as some recent prices named by manufacturers dumping their yarn.

"If you are not ready to believe that cotton hosiery is low in comparison with prices yet to be heard, you had better take a vacation," one mill executive writes to the mill's New York representative. "If 42 cent cotton does not make hosiery worth more than we have been getting for it, that is what we will do at the mill."

Manufacturers are in accord with the view that both cotton hosiery and cotton underwear for 1921 will cost jobbers more than they paid last year. A southern mill which was reported in need of business, with an accumulation of 144 needle half hose, was asked for samples and prices. His price is $1.75, for looped toe. A commission house believes it could find an outlet at $1.60; the manufacturer feels that it will be as easy to get $1.75 later as $1.60 now, particularly in view of the fact that similar socks have been offered around $1.50.

Case-lot sales of women's 220 needle mercerized have been made quite recently at $5.60, 2/10, freight allowance. Stocks of mercerized appear to be running low in many quarters.

A woman's fashioned seamless mercerized stocking is being offered to jobbers at $6.50, a drop from $9, for one number, and $6 for another, the latter having sold at $8.50. Sales have been made at the new prices, deliveries August and September.

Two-pound 84 needle half hose is one of the limited number of hosiery lines in which prices appear to be on a basis of stability. For one reason, they have not been in great supply. The ruling price is $2 a dozen, one mill giving buyers a very slight advantage in freight allowance.

A request out of the ordinary comes from a Central West jobber. He is calling for deliveries of several lines of cotton hosiery not due until October.

A commission house is short 15,000 dozens of cotton half hose bought early in 1919 from two mills. Neither has delivered a case. Both, it is stated by the commission merchant, will deliver or explain to juries why they would not do so.

In another instance a jobber who asserts he bought infants socks in the open market because deliveries were not completed within the time specified in the order is still eager that the shipments from the alleged delinquent mill come forward—at the 1919 price, however.

A leading manufacturer of infants fancy top mercerized socks who has opened the line quotes $3.25, on extraordinarily attractive terms. It is understood neither price nor terms has persuaded jobbers to take hold. Another mill making an identical line is holding for $3.35 and at present has no intention of receding.

Jobbers are asking, what is to be done about orders with mills that are closing down? Will these orders be filled? There is apparent deep concern in the distributing trade over the shutting off of production. One manufacturer who is about to suspend operations for several weeks has asked every jobber with whom the mill has an order whether it will be agreeable to have shipment deferred. Unless advised in the affirmative, orders will be completed before shutting down.

The hosiery situation alone is sufficient explanation for

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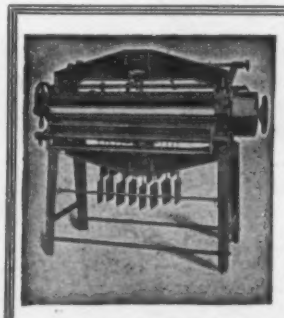

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the anxiety manifested by leading jobbers, numbers of whom have inquired if it be really true that mills are curtailing output to the extent described in the newspapers and various trade publications.

Unfortunately for the distributing trade and the consuming public, the reduction in output promises to be greater than has been estimated, and visible supplies will continue to shrink so long as buyers decline to operate.

In the first place, practically none of the banks would permit loans to manufacturers known to be making goods for stock. To do so would be an open disregard of the restrictions established by the federal reserve banks for protecting credits during the period of readjustment. Curtailment not only is in effect—production could not go on without distribution, the link between making and using that is missing. The jobber being denied loans for financing transactions not immediately called for, it is obvious that there would be no dscrimination in favor of the manufacturer.

It seems that the closing down of any one mill in a textile community was the signal for a general shutting off of production. For example, in Reading there was a disposition on the part of some manufacturers to work up every pound of yarn in stock, regardless of the risk in accumulation. A leading mill of the city suspended operations July 1 and not a dozen has been knitted since, and in the meantime other mills ,one by one, have shut off power and barred the doors. The same falling into line has been witnessed in practically every knitting center.

It would appear that either the retailers buying direct from mills are operating to more than the extent that the latter are able to make commitments or that the jobbers, as a result of remaining out of the market are losing some of their trade. As evidencing this, one of the large direct-to-retailer mills making men's, women's and children's hosiery, seamless and full fashioned, is so booked with business that the management is seeking to enter into a working agreement with other mills equipped for making children's seamless, such mills to receive a guaranteed stipulated profit per dozen.

Thus there is shown a shortage of one line of hosiery in at least one quarter, this following very soon after the shutting down of mills was inaugurated. It is apparent that a scarcity of other lines must result from the curtailment that now is general.

That manufacturer and jobber believe stocks are dwindling to an extent where values will be sustained is indicated by the fact that staples in stock are being held at or about the prices ruling at the time of last regular sales. The quantities of cheap goods floating about have not been sufficient to break the market or keep distributors supplied.

Curtailment has been the one factor in averting demoralization. It has had the same relative effect in saving the market as had the policy of the federal reserve banks in minimizing the danger from financial disaster. Curtailment having proved a stabilizer, it seems likely the policy of restricting production to indicated needs will be adhered to.

It is perhaps significant that most of the better known jobbing houses offered no cancellations, preferring that their orders with mills remain, as a reserve to be depended on in such a situation as is developing. The names of only an insignificantly few of the major operators appear in lists of cancellors, these few having permitted themselves to be placed in uncongenial company. Where there was perspective, goods are being taken in.

Confidence is no less infectious than doubt. Now that it is shown the foremost jobbers are approaching the market, cautiously, of course, the others, most of them lacking in perspective, are becoming restive, and among the weaker manufacturers, whose first impulse was to take a loss, there can be noted a spinal improvement. One manufacturer, who sold a lot of misses 300 needle ribs at a price which was paid to a competitor for seconds, affords a fair illustration of the desperation that seized some mill heads when orders to cancel poured in faster than had orders for merchandise. One manufacturer made it possible for a retailer to sell a 200 needle sock at the rate of six pairs for one dollar. It is understood the dealer paid $1.65, less discount, per dozen.

In another instance a retail store, in New Jersey, is selling three pairs of half hose at one dollar—four dollars a dozen. The lowest price heard in the market to-day for this very stocking is $2.50 to jobbers.

Many mill representatives have adopted the policy of refusing to quote, simply saying to inquiring buyers that prices remain about the same, some adding, "They will be higher."

A jobber is desirous of obtaining the names of mills having accumulations of stocks, stating he is in position to relieve them of a part of their surplus. This same jobber has been in the market for some time, but stubbornly refuses to pay mills' prices. Even now he says he never will buy at values being maintained by manufacturers. He evidently has a demand for hosiery, at prices to be named by his customers.

The same price factors necessarily will dominate cotton underwear and cotton hosiery. Frank H. Burgher, of Bliss, Fabyan & Co., New York and Boston ,selling the product of the Otis Company, Ware, Mass., who is a recognized authority on underwear, is extremely bullish as to prices. In a recent letter which was circulated among jobbers Mr. Burgher took the stand that underwear for next spring must be on a price level of three for one, compared with pre-war values, and that it seems prices will be from 35 to 50 per cent above last year. Production, he points out, is but two-thirds of the pre-war output, and little underwear machinery has been added since 1914. He looks for a hand-to-mouth buying by retailers, which will necessitate jobbers carrying considerable reserve stock. No jobber can operate intelligently just now, he believes, hampered as they are by the tight money situation.

That spring underwear will be higher, as stated by Mr. Burgher, is evidenced in the new prices which have been put on several lines in which manufacturers are ready to operate. And it seems no extravagant prediction that when jobbers come to fill in for heavy weights for next winter they will have to pay above the initial prices.

Regardless of the attitude of buyers, who in the circumstances seem warranted in deferring purchases until the last possible moment, the underwear situation is fast veering to the control of mills. A different story would be told had manufacturers at the outstart guaranteed prices

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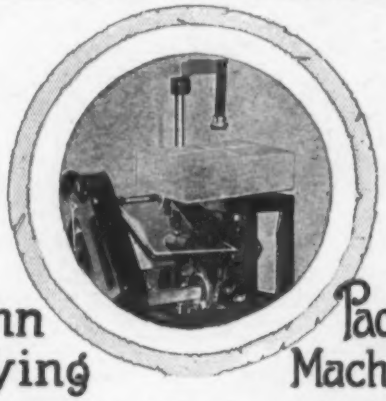

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against declines, a policy which jobbers sought to force on them early in 1919. In the recent declines confusion would have been certain and bad feeling engendered. Now the danger line appears to have been crossed.

Heavy weight cotton underwear for late deliveries already is priced higher by at least one mill, whose shirts and drawers for after September have been moved from $10.50 to $13 for one line and from $15 to $17.50 for another. The mill's new price on its leading union suit is $30, which is an advance of $5.50. The suit is put out as containing 30 per cent of wool.

There was some surprise in the trade that, in view of wool having sustained a sharp decline, there should have been such a radical increase in the price of the garment. It is stated that since the middle of May, by which time the mill had sold to September, a wage increase of 10 per cent in the mill has gone in effect, that the cost, of strawboard for boxes was advanced five per cent, and that the greater cost of fuel and incidentals has added eight per cent to the cost of production. A new price on 22-line pearl buttons is $1.09. In a contract which was completed only three weeks ago the price was 47½ cents.

It is figured that the decline in wool is fully offset by the increases in the other constituents, leaving out of consideration a continually lessening of production due to labor and freight conditions.

The merino union suit of a New York State mill which opened the season at $19.50 and was advanced $2.50 a dozen, will be offered at the original price at the start of the duplicate buying period.

Manufacturers of light weights are understood to be figuring on selling prices at as nearly cost as will be possible, for the first three months selling. Even at that, it is stated, there must be advances over last year that may appear startling. As an intimation of what may be expected, it is stated that a seven pound double carded ribbed union suit will be four dollars a dozen higher, and probably five.

Standard balbriggan suits of the cheaper type may be had from some mills at $5.50 for spot delivery. This is taken by a few jobbers to mean that the price for spring will be no higher. Manufacturers say it will, unless cotton yarns go to lower than present levels. The bals got as high as $6, and $6.25. Last year's average price was about $4.87½, which was approximately three times prewar value. That next year's price will be considerably higher seems to be a certainty.

A Pennsylvania mill's women's carded light weight union suits which in 1919 opened at $3.50 has been quoted at $5.50 to the few buyers who have asked for prices. A 14-cut combination suit, combed yarn, $6 last year, is priced $11 for spring 1921. A jobber who wrote for samples of these two lines was careful to say, "It will not be necessary to send a salesman. I only want the samples to show to my customers."

Several operators in nainsook union suits are reported deviating from scheduled prices in efforts to coax business. Rumors of price cutting have been quite common, but it is the general belief that the only effect was to disturb jobbers. One commission house is quoting $10.50 a dozen for full standard 72-80 and $9.25 for 64-60 for January, February and March deliveries. The latter line is understood to have been offered by another house at nine dollars.

Jobbers as a class would prefer that there be a stable price rather than be able to buy from one concern three or five per cent below the price of another. "Low prices," said one buyer, "will not start us placing contracts. We're not ready."

Sectional Meeting of Knitters.

Emulating the knitting manufacturers of Alabama, Georgia, Louisiana, Kentucky, Mississippi and Tennessee, who organized the Southwestern Division of the National Association of Hosiery and Underwear Manufacturers, the knitting interests of Pennsylvania exclusive of Philadelphia have formed the Eastern Pennsylvania Division, with headquarters in Reading. Organization was effected early in July at a meeting called for a survey of market conditions, the extent of cancellations and the feasibility of adapting production to current demand. W. R. Wetherhold, of the Berks Knitting Co., was elected president, and H. W. S. Gherke, the Gherke Knitting Mills, secretary.

The cancellation epidemic was regarded subsided to a stage where cancellors were making replacement purchases. Cancellation was the weapon to which one class of merchants had recourse for beating down prices at mills and was resorted to by some jobbers for relieving themselves of stocks which it was feared would be thrown back on them by retailers. Judging from reports submitted by manufacturers as to the source of new business, it was assumed the merchandise cancelled would be absorbed in a very short time, particularly in view of the activity in retail stores attributed to special sales and the innovation of 20 per cent off at time of purchase.

Even at that time there were predictions of 50 cent cotton, and many of the manufacturers present saw no reason for alarm, but cautioned patience and counseled against making sacrifices. Speculators, it was believed, were eager to buy at mills' sacrifices. A list of cancellors so far as reported to the Association was read, and it was the common opinion that the speculators would themselves cancel low priced orders placed in the early days of the slump if it continue for any great period, and insist on deliveries with the first indication of a rising market.

Curtailment of production, the shutting down of mills, was regarded the only remedy for what at the time was viewed a serious situation. It was unofficially stated that some jobbers would not be adverse to a suspension of operations, as a move in the direction of stabilizing prices, mill and jobber thus being left in position for making a fresh start, with clear shelves, following the period of liquidation.

A loss of production of 1,000,000 dozen pairs of hosiery, it was estimated, would be the result in Pennsylvania alone during July, from a closing of mills for from two to four weeks. Subsequent developments indicate that the estimate was by no means an extravagant one, for the curtailment has been more widespread than then was contemplated. The reduction in output throughout the United States for July, it is conservatively estimated, amounts to probably more than 2,000,000 dozen pairs.

Figures representing the probable curtailment were arrived at by manufacturers present reporting their daily

production and the length of time it was intended to close their mills, the periods ranging from two to four weeks, commencing with the first Monday in July. For the purpose of striking a conservative average, mills with a daily production of 300 to 900 dozen pairs were used, mills with a monthly output of 30,000 dozens and more being excluded from the reckoning, in which a month was figured as comprising 22 working days. On this basis, if only one-third of the mills in Eastern Pennsylvania exclusive of Philadelphia closed down one month the loss of production amounts to 775,800 dozen pairs. In Reading alone, where sentiment in favor of suspension of operations was very pronounced, there are upward of 50 hosiery mills. Within a radius of about 100 miles, leaving Philadelphia out, there are more than 100 additional, the total being approximately 180. If but one-half of the mills shut down for only two weeks the production loss would be about 600,000 dozens. To this, for computing the curtailment in Pennsylvania alone, must be added a loss of fully 35,000 dozens a week, in Philadelphia, with the working time in the Pennsylvania metropolis being reduced from day to day.

One of the large cotton yarn houses which has canvassed its hosiery manufacturer customers, it was stated at the meeting, estimates that more than 1,000,000 dozen pairs of hosiery will be taken out of production during the next two months. Taking into consideration the fact that several scattered mills have been shut down two to three weeks and that mills operating from 750 to 2,000 knitting machines each are restricting the working time to three days a week, and that a few mills have suspended indefinitely, it was reasoned that the estimate of the cotton yarn house was too low.

Of 39 manufacturers at the meeting, a number operating several branch mills each, 13 reported having sufficient business to assure them steady operation from three to six weeks, and stated that unless additional business were booked they would discontinue manufacturing with the completion of orders. Every person present rose in response to a request for a report on conditions in their mills and their intentions as to reducing output, and at times enthusiasm in support of the curtailment proposal ran high.

While no vote on the suggestion for shutting down to avert demoralization was taken, it was made apparent by the unanimity prevailing that a deep cut is to be made in hosiery production pending resumption of buying by jobbers. Manufacturers said they were virtually driven to adopt such a policy for assuring them prices above cost of operation; that they regarded it suicidal to accumulate stocks so long as jobbers remained out of the market or assumed to dictate prices and terms. Some of the jobbers, it was stated by several manufacturers, are demanding deferred dating and long terms. The buyer for one large house had given notice, it was asserted, that his establishment, when it came to buying hosiery for fall, would insist on terms 2-10-60 extra, December dating, anticipation at 8 per cent.

"We've got to fight all such demands," said a speaker who apparently voiced the sentiment of the meeting generally, "and fight them right away by closing our mills, so as to enable us to have a voice in matters of terms and prices."

One manufacturer who had gone out for business and complained that distributors were not buying, was advised by a large operator in hosiery, "Reduce your prices."

It was held that with the Wanamaker stores' 20 off sales failing to bring prices down at the mill it must be apparent that the bottom has been reached, unless yarn prices and labor costs recede. "We're as much entitled to a profit as jobbers and retailers are," ejaculated a manufacturer, to whose ejaculation there were a number of "Amens."

The suggestion was offered that manufacturers of hosiery lines of which there accrue accumulations pool their stocks and sell direct to consumers, after the fashion of the New England shoe manufacturers, the consumer to get the benefit of mill prices plus sufficient to cover selling cost, which would be well under the profit of the jobber alone. Several mills, it was announced, are figuring on selling direct to retailers, and therefore would not join in the pool plan for going direct to the consumer.

While the discussions and canvass pertained mainly to hosiery, several light underwear manufacturers were heard from and showed the same determination as the hosierymen in the matter of curtailing output and conforming to the law of supply and demand.

Curtailment of light weight underwear is in effect among Pennsylvania mills. One mill is idle for the first time in 25 years. In Schuykill Haven, Pa., the knitting industry is practically at a standstill. New York State light weight mills are operating fewer days a week. The intimation has been given, however, that a general shut down will be the next step. Much will depend on the date of the opening. If that be deferred to September, as seems likely, most of the light weight mills in the Mohawk Valley will settle down for a period of idleness.

The tug of war as between mill and distributor will come with the campaign for spring, 1921. There is one important question that jobbers want to dispose of—whether there is to be absorption of mill production. If an excess is imminent, they hold, they would be disposed to operate accordingly. If, it is pointed out, fear now exists of an over-supply later, the danger from continued operation at this time really is greater than has appeared in some interests.

Some of the smaller manufacturers are possessed with the fear that knitting mills spinning their yarn will have such an advantage that they might continue to produce in about the present volume, with a minimum of risk, and be in position for dominating the market when buying is resumed. Mills of this class, while of the larger type, are in minority, and, it is urged, could supply only a small fraction of all that will be wanted and will be no more formidable as competitors than in the past.

The Portable Machinery Co., Passaic, N. J., has just published a 24-page catalog entitled, "Portable Conveyors." This is complete with illustrations showing the various uses of the scoop conveyor and other portable conveyors manufactured by them, and describes clearly the labor, time and money saving features of the machine in storing, reclaiming, loading and unloading material such as coal, coke, ashes, sand, gravel, crushed stone, fertilizer, cement, chemicals, etc. Copies of the catalog will be sent free upon request to the manufacturers at the address given.

Source of Foreign Credit Information.

BY ERNEST L.LITTLE.

Among the many export problems confronting the new exporter is his credit policy. As a rule, manufacturers and exporters are quite willing to sell on credit providing they can have a reasonable assurance that the foreign importer is in a position to pay for his purchases. This assurance, however, should be based on the financial standing and responsibility of the foreign purchaser, and the same precautions should be taken by the exporter in the extension of foreign credit as in domestic credit.

The sources of domestic credit information are well known and shipments are frequently made upon the agency rating. The new exporter, lacking this readily accessible source of information as to his prospective foreign customer's financial standing, becomes bewildered and questions the advisability of extending credit.

There are, however, many reliable sources of foreign credit information and when used judiciously provide material upon which the extension of credit can carefully be considered.

The best known domestic sources of obtaining information on the standing of foreign customers are the credit agencies. These agencies, whose sole purpose is to obtain domestic and foreign credit information, have established their own offices abroad and with their correspondents and agents are enabled to furnish the American exporter with details regarding a credit risk.

In addition to this source, there are several non-mercantile associations which have established direct foreign credit departments with foreign correspondents for the benefit of their members. Export publications also maintain foreign credit bureaus for the use of their advertisers.

Besides these organizations, the manufacturer may obtain credit information through the credit departments of American banks and the branches of foreign banks in this country. The American banks, perceiving the need of substantial foreign credit information, have established a department for the purpose of assisting exporters and through their own branches and foreign banking correspondents, they are able to supply information from all parts of the world and when a report is not on file an investigation will be instituted without charge in behalf of their clients. When time is an important factor, information will be secured by cable at the customers expense.

Another domestic source is from American manufacturers supplying the foreign customer with merchandise but care should be taken not to send an inquiry to a competing manufacturer.

If the exporter is unable to secure satisfactory results from his own banking connections, application may be made to the foreign banks located in the city or in the vicinity of the foreign importer. When this method is followed, willingness should always be expressed in the request to pay the bank's charges and return postage covered by international coupon inclosed.

It frequently happens that the foreign importer, being a reasonable business man, includes references in his correspondence. When using these references a statement should be made to the effect that their name has been given as a reference.

A successful method employed by many exporters to secure these references is to send the names of purchasers of their products in the foreign and domestic markets to the prospective buyer, suggesting that in order that the customer can become assured of their ability to fill the order and the satisfaction obtained by other buyers, these references are given and that similiar action on his part would be greatly appreciated.

When the credit investigation is completed, the American exporter immediately notices the difference between the foreign and domestic credit information, being accustomed in his domestic reports to receive not only the trade and bank opinions, but in addition a financial statement and least of all an estimate of the net worth of the company. The result of his foreign investigation will show an utter lack of details and merely a statement to the effect that the prospective customer is of good standing, high morality, of good family and doing business with sufficient capital. This report at the first glance would not indicate any degree of financial responsibility but to the credit man, who can read between the lines, considerable information has been obtained. The fact, that the subject is of good family increased the value of the credit risk. Family honor, especially in Latin American countries, is valued more than money and in case of failure, the resources and wealth of every member, even to the fourth cousin, would be placed at the disposal of the unfortunate member in order to liquidate his liabilities. It can also be safely assumed that if the company is of good standing, payments are made in accordance with terms.

In Latin American and many other foreign countries, a request for a statement is frequently regarded as an insult and would be ignored. The feeling is gradually disappearing due to the fact that many American importers and exporters are having their financial statements placed on file in the foreign branches of American banks for reference.

While the balance sheet of the foreign buyer is not always accessible, the exporter after giving careful consideration to the information he has secured can safely extend credit without undue loss. This fact is substantiated by the experience of many exporters whose percentage of loss for bad accounts resulting from foreign sales is less than that of their domestic sales.

Exports of cotton and artificial silk hosiery from the United States for the first four months of 1920 were equal to almost the number of dozens exported in 1919, and in value were more than one half. Exports for January to April inclusive were 4,895,388 dozens of cotton, valued at $14,737,821, and 258,093 dozens of artificial silk, of a value of $2,150,894.

Exports in April amounted to 1,220,647 dozens of cotton and 70,678 dozens of artificial silk, the latter having an invoice value of $661,864 and the cotton $3,779,974. Of the cotton hosiery 374,315 dozens were taken by England. The larger shipments to other countries were: France, 136,169 dozens; Cuba, 124,952; Belgium, 33,832; Denmark, 20,407; Greece, 16,192; Italy, 35,729; Costa Rica, 11,382; Dominican Republic, 16,646; Argentina, 33,678; Chile, 17,219; Colombia, 27,193; Peru, 27,103; Uruguay, 20,229; British India, 12,491; Australia, 78,842; British South Africa, 16,346; Egypt, 26,329. Germany bought 801 dozens of cotton.

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ADVERTISING conserves the buyer's time by acquainting him with a product at his leisure, long before the buying need arises.

The Yarn Market.

Throughout the past month prices of cotton yarns in the Boston market have been falling with more or less rapidity, first noticeable among finer counts but at this writing affecting even coarser numbers. Demand has been decreasing steadily, with the exception of that for electrical goods, the latter being described by the agent of one of the larger yarn spinner's as "the one bright spot in the market." Buyers of practically all other counts, however, seem to feel that the bottom has not yet been reached and hold steadfastly aloof when energetic salesmen attempt to imbue confidence and incidentally to induce purchase.

Some sales have of course been made, including much yarn that was resold where holders found they had a surplus and in some cases were forced to sell owing to the tight money market. Invariably these sales brought prices far below quotations by spinners. This sort of transaction has been more noticeable possibly since the semi-annual stock taking on the part of New England mills early in July at which time many mills found just how much surplus they had in certain counts.

Meantime spinners have been more or less disturbed at the frequency of such sales at low prices. Early in the month many of them expressed indifference as they congratulated themselves on having several weeks work ahead on orders already booked. As weeks drag on, however, with no marked change in sight, some appear more willing to accept firm bids than has been the case for more than a year, with curtailment or temporary shutdowns facing them as the alternative. In some quarters curtailed operation has already been put into effect, namely at New Bedford, Mass., where the yarn department of the Bristol Manufacturing Company is working on a four day a week basis. Indications at this writing point to others following suit in the immediate future. This can undoubtedly be accounted for partially by the dullness in the drygoods market with resulting cancellations of goods turned out by various yarn users. Many spinners rather than accept cancellations where it was obviously impossible for customers to accept yarn, arranged "postponed deliveries" that seem to have been more satisfactory to the yarn users than the spinners.

Yarns meantime have accumulated with considerable rapidity and some mills have been running stock yarns, particularly in the finer counts and warp twist yarns. Naturally this surplus of yarn does not strengthen the market, especially with the recent announcement by the U. S. War Department of sales of considerable quantities of cotton as well as worsted yarn by the Surplus Property Division. One lot recently sold at Boston consisted of 19,958 pounds of cotton yarn, 10-9 tubes, advertised at 58 cents a pound.

Transportation continues to seriously hamper the New England textile centers, both in receipt of raw cotton from the South and shipment of yarns to customers. Considerable raw cotton has been delayed for many weeks at New York by the port strike there. Receipts at five of the chief textile centers of New England for the month of June, just announced, total nearly 110,000 bales, or about 10,000 bales more than in May. The gain went to Fall River, Lawrence, and Manchester, with New Bedford and Lowell receiving less than they did in May. Fall River

received 48,279 bales during June, the largest amount received by any one New England textile center that month. New Bedford has led New England with the heaviest cotton receipts for the past 10 months, and is expected to regain its position by much heavier orders with completion of the new addition to the Manomet Mills, which will give those mills a capacity of 750,000 pounds of combed yarn a week, requiring about 100,000 bales of cotton per year. The Amoskeag mills at Manchester, using about 125,000 bales per year, is said to be the only mill in the United States using more raw cotton than the Manomet with the addition of their new building.

Quotations in the New England market at this writing on representative numbers follow:

Southern Single Carded Cones.			
10s	66 @67	12s	67 @68
14s	68 @69	16s	69 @70
18s	72 @74	20s	74 @76
22s	76 @77	24s	78 @80
30s	90	40s	1.40
Weaving Yarns—Warp Twist.			
10-2	70	12-2	71
14-2	72 @73	16-2	79 @80
20-2	84 @85	24-2	96 @$1.00
30-2	$1.00@$1.05	36-2	$1.35@$1.40
40-2	$1.45@$1.50		
Northern Carded.			
10-1	73 @75	16-1	75 @77
20-1	78 @79	26-1	85 @88
30-1	98 @$1.05	40-1	$1.50
Northern Combed.			
10-1	$1.00@$1.05	16-1	$1.00@$1.15
20-1	$1.20@$1.23	30-1	$1.35@$1.45
40-1	$1.85@$1.90		

The past month has seen a very considerable softening in the cotton yarn situation in the Philadelphia market, followed, as the month closes with a slight stiffening of prices and a growing tendency to stand firm.

Southern single carded skeins went off several cents during the last week of June, 26s dropping to 90c. Two plies also eased off, 24s selling at 95c, 26s at 97c and 30s at $1.05. Knitting yarns were also shaded somewhat during this period and carpet yarns seemed weaker.

As July opened there were many opinions current as to the action of yarns during the second half of the year, and many speculative guesses as to the probable raw cotton outlook. It was freely conceded that the future of yarn prices depended to a very great extent upon the raw staple situation, but this was such an elusive factor that such concessions did no one any good from a market reading viewpoint.

After ten days of July trading, which was of a restricted character because of mid-year inventories, holiday rest periods and the general unsettled conditions, the easing of prices seemed to continue; 26s single carded skeins falling 5c to 85c, 24s two-ply skeins dropping to 92c, and others in the list in like proportion.

The middle of the month found southern carded yarn prices still slightly easing, but the combed yarns seemed to be holding fairly well when taken in proportion. For example, at this period 26s single carded skeins had dropped another 4c to 81c and 24s two-ply skeins had receded to 85c, while two-ply combed peeler 30s that were quoted on June 30th at $1.70 had eased in the interim to $1.60. There was so little large lot trading that many of the quotations meant little more than some disposition of small or broken consignments. However, it became evident that spot yarns in certain counts were becoming hard to find and there seemed to be a slight increase in the number of inquiries coming in.

At the time this is written the slightly improved buying continues especially on small lots, but the market wise do not look for much hardening in the prices until the buying becomes more general. It is very doubtful if a cotton crop can possibly be produced under present conditions that will greatly affect the present yarn situation, as at its best it's not very good and the demand will be more than sufficient to keep the raw staple prices from making a very material reduction.

Recent Philadelphia quotations follow:

Southern Single Skeins.			
4s to 8s	64	10s	65
12s	66	14s	67
16s	69	20s	74
24s	78	26s	81
30s	86		
Southern Single Warps.			
8s	64 @65	10s	65 @66
12s	66 @67	14s	68 @69
16s	69 @70	20s	78
26s	90	30s	91
40s	$1.40		
Carpet and Upholstery Yarns in Skeins.			
8-3-4 slack			56
9-4 slack			56
8-3-4 tinged tubes			52
8-3-4 hard white warp twist			58
8-3-4 hard twist waste			49
8s	64 @65	10s	66 @67
12s	67 @68	14s	69 @70
16s	71 @72	20s	78
24s	85	26s	90
30s	90	40s	$1.40
Southern Two-Ply Warps.			
8s	66	10s	67
12s	68 @69	14s	70 @71
16s	73 @74	20s	78
24s	86	26s	90
30s	92	40s	$1.40
Two-Ply Combed Peeler, Skeins and Warps.			
20s	$1.30	24s	$1.45@$1.50
30s	$1.55@$1.50	40s	$1.70@$1.75
50s	$2.00@$2.10	60s	$2.15@$2.20
70s	$2.60@$2.70	80s	$2.75@$2.85
Southern Frame Spun Carded Yarn on Cones.			
8s	63 @64	10s	64 @65
12s	65 @66	14s	66 @67
16s	67 @68	18s	71
20s	72	22s	73
24s	77	26s	78
30s	83	40s	$1.20
30s tying-in			80
30s double carded			90
Northern Mule Spun Carded Yarn on Cones.			
10s	70	12s	71
14s	72	16s	73
18s	74	20s	75
24s	78	26s	80
30s	$1.00	40s	$1.20
Northern Mule Spun Combed Peeler Yarn on Cones.			
10s	$1.05	12s	$1.07
14s	$1.08	16s	$1.09
18s	$1.10	20s	$1.13
22s	$1.14	26s	$1.20
28s	$1.25	30s	$1.30
36s	$1.50	38s	$1.55
40s	$1.60		

A New Welding Suggestion.

The Wright Bros. Boiler & Machine Co., of Ranger, Tex., have developed a new collapsible or "break-down" forge that is coming into extensive use in the southwestern oil fields. The forge is designed for oil field tool workers, who find portable equipment very desirable owing to its compactness and the ease with which it can be set up wherever and whenever needed. The new forge is being built on a production basis in the shops of this company as a side issue to its regular business. The entire manufacturing operation, which consists simply of cutting metal sheets to pattern and welding of the joints, is done with the oxy-acetylene flame, and the equipment required is almost as simple and compact as the forge itself. Besides material and operators the only requisites are the Oxweld cutting and welding blowpipes, Prest-O-Lite dissolved acetylene and Linde oxygen, the gases being supplied in portable cylinders.

Among the Knitting Mills.

The Shamokin (Pa.) Hosiery Mills have been incorporated with a capital of $150,000 to manufacture cotton hosiery. Edward H. Deibler is treasurer.

The Elite Hosiery Company, 1806 Venango Street, Philadelphia, Pa., has completed plans for the erection of a new three-story building on Cockrus Street, 55 x 120 feet, to cost about $65,000.

The Auto Knitter Hosiery Company, 821 Jefferson Street, Buffalo, N. Y., has awarded a contract for the construction of a new two-story plant, 50 x 150 feet, on East Genesee Street, to cost about $50,000.

The Union Manufacturing Company, Frederick, Md., manufacturer of hosiery, with branch plant at Thurmont and Emmittsburg, has filed notice of increase in its capital from $50,000 to $300,000 for proposed expansion.

The Cacoosing Knitting Company, Sinking Springs, Pa., has been incorporated with a capital of $25,000 to manufacture cotton goods of various kinds. Ambrose B. Madeira is treasurer.

The Floradel Knitting Company, New Orleans, La., has completed plans for the erection of a two-story addition to its plant on Spain Street, 32 x 100 feet. The company will install considerable new knitting machinery for hosiery manufacture.

The Broadalbin Knitting Company, Broadalbin, N. Y., has increased its capital from $500,000 to $1,000,000 for proposed expansion.

The Lehigh Knitting Mills, Macungie, Pa., are planning for the immediate erection of a one-story addition to their power house, to be used for increased capacity.

The William H. Bratton Hosiery Company, Philadelphia, Pa., has been incorporated with a capital of $10,000 to manufacture cotton hosiery. William H. Bratton, 4803 Leiper Street, is treasurer of the company.

The California Cotton Products Company, Los Angeles, Cal., has completed plans for the erection of its proposed new mills on Obispo Avenue, near Anaheim Street, to consist of a number of one-story buildings. The plant will specialize in the manufacture of cotton fabrics and the initial units are estimated to cost close to $60,000. Daniel S. Miller will act as construction engineer for the company.

G. H. Strawbridge & Company, Inc., New York, has been incorporated with a capital of $200,000 to manufacture cotton products. The incorporators are G. H. Strawbridge, G. J. Steidle and J. F. McGowan, 56 Liberty Street.

The Lapat Knitting Mill, Inc., Easton, Pa., has been incorporated with a capital of $60,000 to manufacture cotton goods of various kinds. Chester Snyder, Easton, is treasurer.

The Wallace Knitting Mills, Wilmington, Del., are planning for the establishment of a new branch plant at Philadelphia, Pa. David Lees is president.

The Lebanon Valley Knitting Mills, Strausstown, Pa., has been incorporated with a capital of $20,000 to manufacture cotton goods. George C. Hix is treasurer.

The Germantown Knitted Fabrics Company, Germantown, Philadelphia, Pa., has been organized to operate a local cotton works. George W. Lindley and John Wright head the company.

The Red Bank Knitting Mills, Inc., Red Bank, N. J., has been incorporated with a capital of $100,000 to operate a local plant for the manufacture of cotton goods. Louis E. Brown, Louis and Hyman Heller, all of Red Bank, head the company.

The contracts have been let for the construction of the Weed Hosiery Mill at Bristol, Va. The building will be of mill construction, 50 by 130 feet, two stories, and will cost $25,000. Seventy-six knitters have been purchased together with other machinery which will give a production of 450 dozen hose daily. Electric power will be used.

The J. R. Montgomery Company of Windsor Locks, Conn., are building a five-story concrete building, 260 by 60 feet, next to their cotton warp mill, to house the tinsel and embroidery departments. They are also building a dyehouse 285 by 80 feet.

The Queen Underwear Manufacturing Company, St. Louis, Mo., has been incorporated with a capital of $15,000 by S. Glatstein, S. S. Weissman and S. L. Schwab.

It is reported that J. S. Stark, T. G. White and Bradley Reese are to establish a hosiery mill at Abbeville, S. C.

The Holston Manufacturing Company has purchased a 100-acre site at Knoxville, Tennessee, and will build a knitting mill complete, with dye and finishing plant and 50 cottages. Lockwood, Greene & Company of Boston and Atlanta are the engineers.

The Blue Ridge (Ga.) Knitting Mill has been incorporated with a capital stock of $30,000 to manufacture hosiery. The officers are M. C. King, president, McCaysville, Ga., and J. F. Holden, secretary, Blue Ridge.

It is reported that the Calton Manufacturing Co., of Spartanburg, S. C., is to enlarge its plant during the present year.

The Port Leyden Knitting Company, Lowville, N. Y., is said to be planning many improvements at its plant. George Ireland is superintendent.

On July 1 and 2 the Atlantic Dyestuff Company held its first annual salesmen's convention. Those in attendance spent Thursday morning going over the company's new plant at Portsmouth, on the company's train, later inspecting the equipment now in operation and being installed.

After a lunch at the company's hotel, they visited the Kittery Navy Yard in Portsmouth Harbor, going as the guests of the Portsmouth Chamber of Commerce; many points of interest were inspected, including the submarine ways, machine shops and hospital; a number took advantage of the invitation of their naval escorts to explore the interior of a submarine put into commission that morning; all, especially the navy yard officials, were greatly interested in the story of the new nitrator just put into operation by the Atlantic at its Portsmouth works, which is capable of producing 40,000 pounds daily of TNT.

The party spent Thursday night at the Hotel Wentworth, and on Friday motored down the north shore, through Hamilton, to the home of Mr. A. C. Burrage, president of the Atlantic Company, who entertained them at lunch, later conducting them through his greenhouses, which, incidentally, contain the finest private collections of orchids known. The day was closed with a theatre party, "Mary" at the Tremont Theatre, being the attraction.

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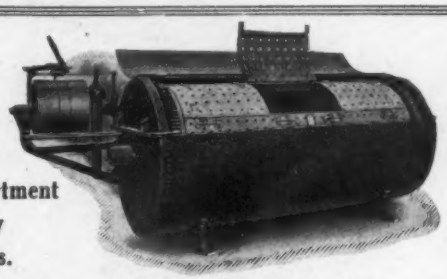

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Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? **15 Colors and White**

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"Center-Slung"

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is especially adapted to this purpose, particularly where a large, open-top machine, providing unrestricted access to the interior of basket, is desired.

This machine comes with baskets of 40", 48" or 60" diameter and is provided with roller bearings, lubricated with grease, and is driven by countershaft or motor.

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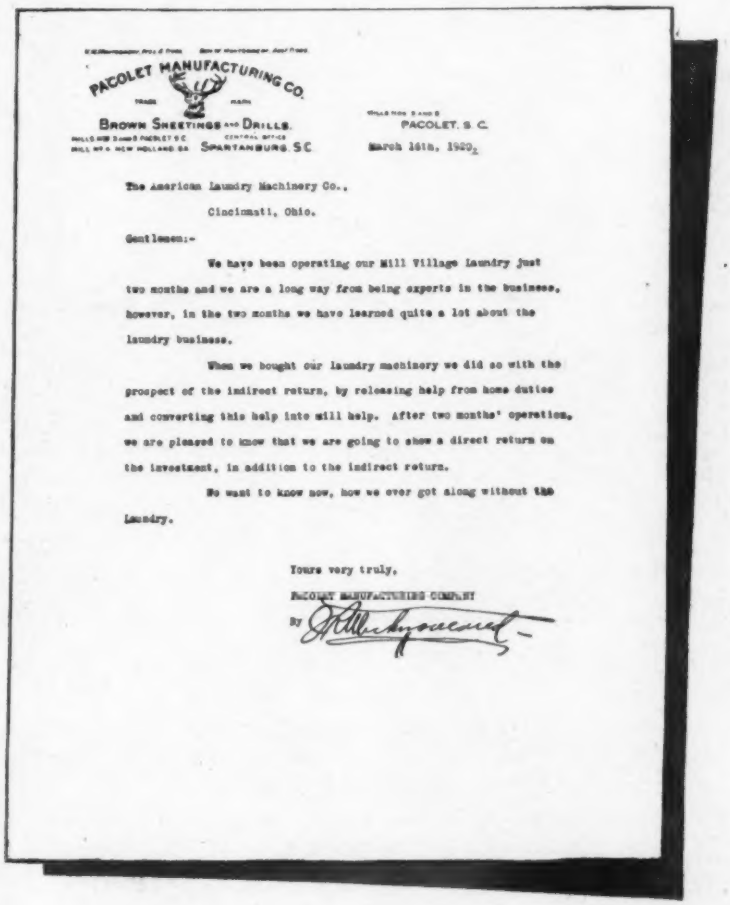

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BROWN SHEETINGS AND DRILLS.

SPARTANBURG, S.C.

PACOLET, S. C.

March 16th, 1920.

The American Laundry Machinery Co.,

Cincinnati, Ohio.

Gentlemen:-

We have been operating our Mill Village Laundry just two months and we are a long way from being experts in the business, however, in the two months we have learned quite a lot about the laundry business.

When we bought our laundry machinery we did so with the prospect of the indirect return, by releasing help from home duties and converting this help into mill help. After two months' operation, we are pleased to know that we are going to show a direct return on the investment, in addition to the indirect return.

We want to know now, how we ever got along without the Laundry.

Yours very truly,

PACOLET MANUFACTURING COMPANY

By

How Washday Lay-offs Were Ended in Pacolet

The experience of The Pacolet Manufacturing Company, as told of in the above letter, is in line with that of every manufacturer who has installed an American Mill Village Laundry.

It ends washday lay-offs—and it ideally solves one of the greatest problems of the mill owner.

Your inquiry will bring immediate and complete information at no cost to yourself.

The American Laundry Machinery Co.

Specialty Dept. C, Cincinnati, Ohio

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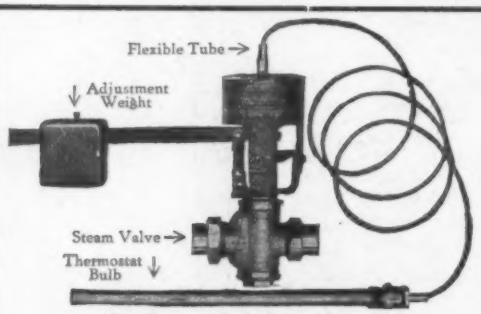

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For dyeing or other processes where even temperature of a liquid is essential to best results, this Regulator is unsurpassed. Automatic, thermostatic, accurate, reliable, may be adjusted for different temperatures, as desired. Let us send you one. It will prove all our claims, and more.

It costs you money every time a piece of dyeing turns out streaked, or off shade.

You lose not only the difference in price between "firsts" and "seconds," but the **morale** of your organization is lowered. If anything **less** than **perfection** is allowed to pass once, it will be allowed **again.**

Stop that loss by installing Automatic Heat Regulators in your dye liquor. Even, dependable, **correct** temperature of dye liquor **prevents** streaks and off shades. Manual regulation takes extra time, and is not **accurate,** at best.

Let us prove to you, in your own mill, the money-value there is for **you** in Automatic Regulation. Heat control has been our sole business for over 30 years. Our experience is at your service.

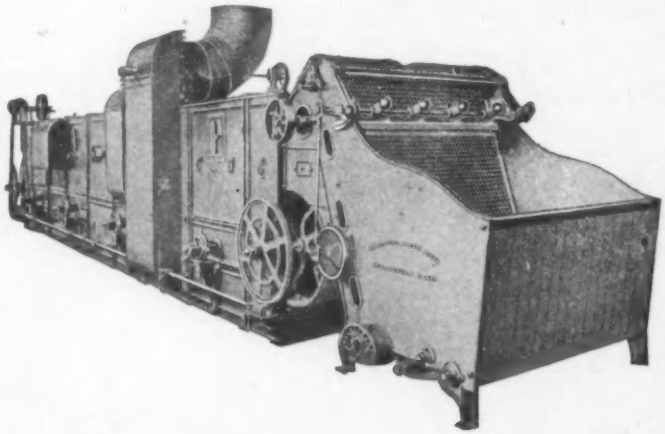
The Powers Regulator Co.

Specialists in Automatic Heat Control

NEW YORK CHICAGO BOSTON TORONTO

Southern Representatives

(1407) **"ASKUS" Ira L. Griffin, Greenville, S. C. Guy L. Morrison, Charlotte, N. C.**



Sargent Dryers

Rapid, Thorough Uniform Drying

There are over two hundred mills that can vouch for our statement that SARGENT DRYERS live up to our claims for rapid, thorough, uniform drying, yet preserving the natural life and structure of the fibre and accomplishing these results at the lowest consumption of steam and power.

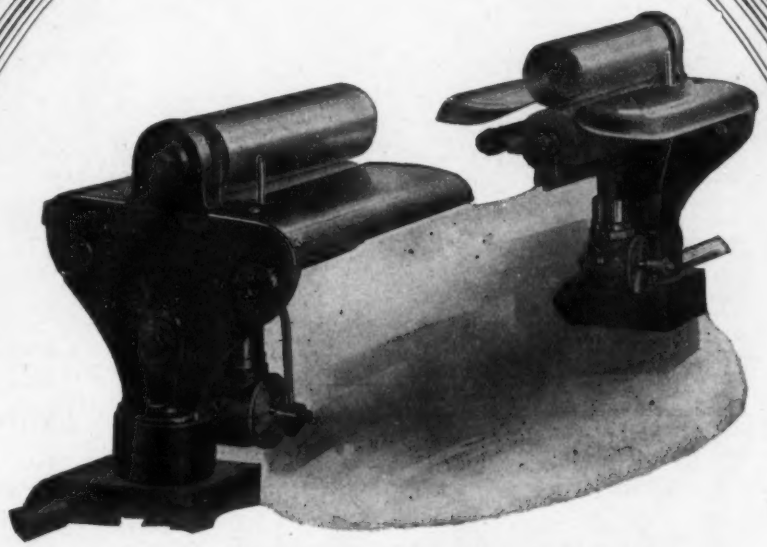
SARGENT DRYERS are backed by over 50 years of concentration in dryer manufacturing experience.

The SARGENT is designed on basic principles of air circulation, conveying and drying apparatus construction which has proven best from long experience.

Write today and let us explain the principles of SARGENT DRYERS. Made in models for drying cotton, linters, wool, hair, flax and any raw material.

C. G. Sargent's Sons Corp.
Graniteville, Mass.
Fred H. White, Southern Agent
Charlotte, N. C.

1820 A CENTURY of SPECIALIZATION 1920



"Foxwell" Pneumatic Guider and Feeder

WE put something far better than brains in the "Foxwell" Pneumatic Guider and Feeder. Unlike the human operative, it doesn't even stop to think but continuously and accurately guides the fabric to machines or rolls in an undeviatingly straight line. It cuts waste and wages.

Send for the "Foxwell" book. It will interest you.

THE BUTTERWORTH LINES INCLUDES:

Bleaching Machines	Hydraulic Presses	Mangles (all kinds)
Drying Machines	Dyeing Machines	Calenders (all kinds)
Singeing Machines	Soaping Machines	Color Kettles
Mercerizing Ranges	Tentering Machines	Cell Dryers

H. W. BUTTERWORTH & SONS CO.

Established 1820

PHILADELPHIA

PROVIDENCE OFFICE
Turk's Head Building

Canadian Representative
W. J. WESTAWAY COMPANY
Hamilton, Ontario, Canada

FINISHING Butterworth MACHINERY

COCKER HOSIERY DYEING MACHINE

THIS machine has been thoroughly tested out with all colors and under all conditions, and is guaranteed to give the very best results possible in the dyeing of hosiery.

The stock is carried in four perforated metal containers equipped with one removable head on each container, and the containers mounted on Spiders in such a manner as to permit of their being loaded and unloaded quickly from the machine.

The Spiders carrying these containers are revolved in the vat *in one direction.*

Machines are furnished with either belt or motor drive.

Points of Advantage in This Machine That Must Be Considered

1st—Matting and chafing of the stock is entirely eliminated.

2nd—Percentage of re-dyes is reduced to a minimum.

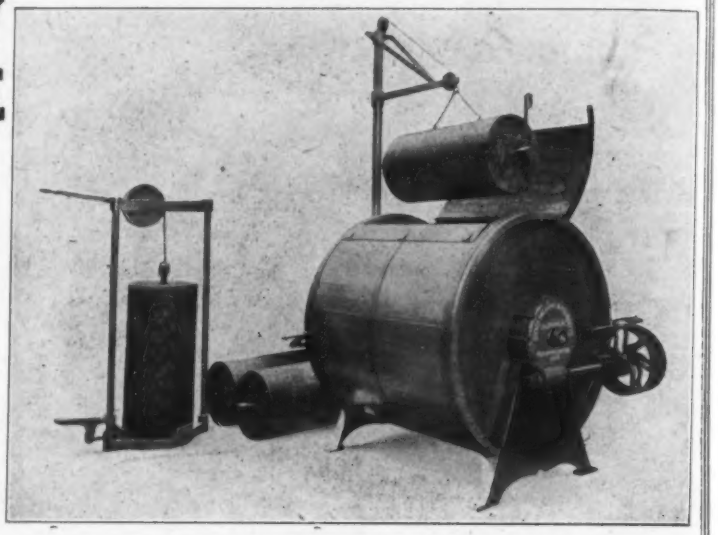
3rd—Different sizes and descriptions can be handled in one dyeing without confusion.

4th—Time required for loading and unloading machine reduced to a minimum.

5th—Absolutely level dyeings on all colors.

6th—Minimum of power required for operation.

For further particulars and prices write or wire.



Cocker Machine & Foundry Co.

GASTONIA, N. C.

Builders of Textile Machinery.
Warpers—Beamers—Baling Attachments—Warp Dyeing Machinery—Reels

Fletcher 12" Laboratory Centrifugal

A small compact and very powerful machine adapted to all laboratory work, and suitable for experimental purposes of every character.

LET US TELL YOU HOW YOU CAN APPLY IT TO YOUR WORK.

FLETCHER WORKS

Formerly Schaum & Uhlinger
Glenwood Ave. and Second St.
Philadelphia, U. S. A.

USE INTENSITY of SUNLIGHT ···TESTS···

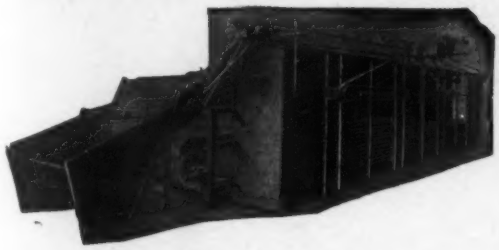
The Color Fade-Ometer Gives You the Same Advantage as Natural Sunlight in Determining Whether Colors Are Fast or Not.

STANDARDIZED SUNLIGHT

This means that the manufacturer can test the fabric dye as readily in one part of the country as another. The light of the Fade-Ometer is exactly the same in effect on dyes as the sunlight, but has the advantage of requiring only a few hours time to prove fastness. It is constant day and night. Requires merely connection with current sources to be operative.

Learn the Modern Way of Dye Testing
Send For Folder

ATLAS ELECTRICAL DEVICES CO.
360 West Superior St.
CHICAGO ILL.



Proctor Three Conveyor Stock Dryer for cotton, fur, hair, rags, waste, wool, etc.

Drying Textiles

Proctor Dryers have been adopted as standard equipment by most of the largest mills in the country because they

Withstand wear and tear of time, heat, moisture and hard usage.

Are fireproof; steel construction and bearings outside the dryer.

Recirculate continuously and uniformly warm moist air in every part of drying enclosure.

Are accessible.

Save time, labor and floor space.

Dry uniformly.

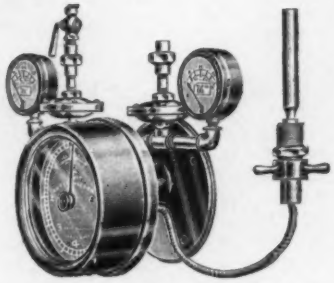
Are made by the largest and oldest exclusive makers of dryers.

PROCTOR AND SCHWARTZ, INC.
Formerly Phila. Textile Mach. Co.
PHILADELPHIA, PA.

New York — Providence
Chicago — Charlotte
Hamilton, Ont., Canada.

"Proctor" DRYERS

141



Take It For Granted!

You know that temperature is a vital factor in slashing. Uniform temperature maintained at the right point is as important as the sizing mixture.

You can take it for granted—it has been proved often—that operating a hand valve even with the greatest care and skill will not prevent harmful temperature fluctuations.

It is much simpler, easier and more economical to use a TAG Perfect Automatic Temperature Controller. You will then realize the advantages of correct sizing—and the economies in labor, steam and time such automatic control assures.

The efficiency of the TAG Controller can also be taken for granted; that has been proved, too.

May we have an opportunity of proving it to you?

Bulletin C-425 explains

C. J. TAGLIABUE MFG. CO.
TEMPERATURE ENGINEERS
18-88 Thirty-Third St. Brooklyn, N.Y.

Trade Mark Reg. U. S. Pat. Off.

"BRETON"
MINEROL "F"

FOR

Cotton Piece Goods

"We are pleased to say that adding the *Breton Mineral "F"* in our boil has given us a softer finish"

BORNE, SCRYMSER COMPANY

80 South Street, NEW YORK

BOSTON **PHILADELPHIA**

Works: Elizabethport, N. J.

Althouse Chemical Company

MAIN OFFICE AND WORKS

500-540 PEAR STREET READING, PA.

Manufacturers of

American Made Dyestuffs

Acco Direct Yellow

A Truly Fast Union Color.

Dyes Silk and Cotton Same Shade.

PHILADELPHIA OFFICE, 243 S. SECOND STREET

Do You Pay For WATER or For OIL?

National Oil Products Company
General Sales Office
220 Broadway
New York

NOPCO PRODUCTS

August. 1920.

NOPCOCASTOR is not only the most highly sulphonated Castor Oil on the market but is guaranteed always to be the specified strength. It is therefore the most economical Turkey Red Oil for you to use.

Water is nature's greatest gift to man, but most of us do not like to buy it at a fancy price. Do you get what you pay for? The NOPCO specification plan protects you.

Send us a sample of your Turkey Red Oil for examination by our laboratory, let us show you the difference as compared with NOPCOCASTOR. No obligation incurred.

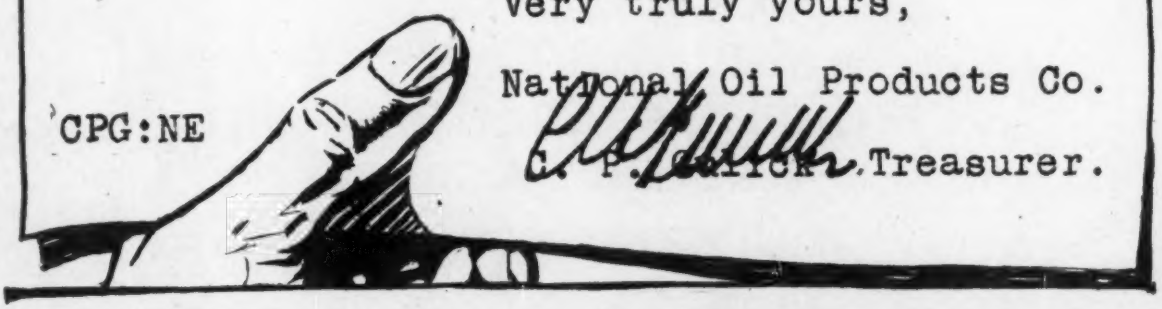
Technical data on the use of NOPCOCASTOR prepared by our Technical Service Department will be sent on request.

Very truly yours,

National Oil Products Co.

C. P. Barrick, Treasurer.

CPG:NE



NATIONAL OIL PRODUCTS COMPANY

Chicago New York,

COLORS Acid—Direct—Basic Mordant—Sulphur
INTERMEDIATES
HYDROSULPHITES
SIZING MATERIALS
COTTON FINISHES
TURKEY RED OILS
SOLUBLE OILS

H. A. Metz & Co.

Incorporated

122 Hudson Street New York

ABOVE PRODUCTS ARE THE MANUFACTURE OF

CONSOLIDATED COLOR & CHEMICAL COMPANY

Newark, N. J.

CENTRAL DYESTUFF & CHEMICAL COMPANY

——BRANCH OFFICES——

BOSTON, MASS.
CHARLOTTE, N. C.
PHILADELPHIA, PA.
SAN FRANCISCO, CAL.
CHICAGO, ILL.
PROVIDENCE, R. I.

1872 1920

CHEMICALS, DYESTUFFS COLORS, GUMS, OILS

FOR THE TEXTILE INDUSTRY

HEADQUARTERS FOR

ACID, BASIC, DIRECT, CHROME and SULPHUR COLORS; "CIBA" and "CIBANONE" FAST VAT DYES

A KLIPSTEIN & COMPANY

644-652 Greenwich Street NEW YORK CITY

COTTON · WOOLEN · WORSTED GOODS
SILK GOODS · CARPETS · RUGS ·
LINEN · FURS · FEATHERS ·

AMERICAN DYESTUFF INDUSTRY

KNIT GOODS · DYEING · TEXTILES ·
LEATHER · PAINTS · INKS · BUTTONS ·
PAPER · PERFUMES · HAIR ·

PROTECTION TO AMERICA AND AMERICAN INDUSTRIES

DU PONT DYESTUFFS

Keeping 67,000 Factories Running

THERE are in America, in the textile, paper, leather and allied industries, 67,585 *separate* establishments dependent, directly or indirectly, upon regular and uninterrupted supplies of dyestuffs.

In these factories, which represent an investment of four billion dollars, over two million people are employed. They produce annually in manufactured goods nearly six billions of dollars or 25% of the country's total output of manufactured products.

American dyestuff manufacturers are straining every effort to keep these thousands of factories running, these millions of workers employed and the flow of manufactured products unbroken. For these efforts to be successful however, American manufacturers, American workers and American consumers must themselves provide the means of safeguarding this industry in such a way that its permanence, stability and continuous development is assured.

E. I du Pont de Nemours & Company, Inc.
Dyestuffs Sales Department
Wilmington, Delaware

Branch Offices

New York, Philadelphia, Boston, Chicago, Providence, Charlotte, N. C.

EXPLOSIVES — MUNITIONS OF WAR — MUNITIONS OF PEACE — DYESTUFFS

1802 — SULPHURIC ACID — ANTHRACENE — BENZOL — TOLUOL — NAPHTHALENE — NITRIC ACID — 1918

IMPROVE YOUR BLACKS

"DEVELOPENE"

Turns a *Rusty Black* to a *Lustrous One.*

THERE is no slight of hand connected with it. Send a pair of stockings, a skein of yarn or a sample of fabric, which has been dyed black, washed but not finished, to our Laboratory.

We will finish it with "Developene" and return to you. There will be such an improvement you will immediately want "Developene" for finishing your goods.

Manufactured only by

Kali Manufacturing Co.

Manufacturing Chemists

1404-1410 N. Front Street PHILADELPHIA, PA. 1409-1413 N. Hope Street

Salicylic Acid Prevents Fermentation of Size

Sole Manufacturers of Hydroxy Oil and Kali Chlorine Neutralizer—the Superior Anti-Chlor. Formaldehyde

ESTABLISHED 1815.

Arnold Hoffman & Co., Inc.,

PROVIDENCE, R. I. NEW YORK, N. Y.
BOSTON, MASS. PHILADELPHIA, PA.
CHARLOTTE, N. C.

Importers and Manufacturers of

STARCHES, GUMS, DEXTRINE, ALIZARINE ASSISTANT, SOLUBLE OIL, SOAP

And Every Known Material from Every Part of the World for Starching, Softening, Weighting and Finishing Yarn, Thread or any Fabric.

Special Attention Given by Practical Men to Specialties for

SIZING, SOFTENING, FINISHING AND WEIGHTING

Cotton, Woolen and Worsted Fabrics combining the latest European and American Methods. We Believe There is No Problem in

SIZING OR FINISHING

That We Cannot Solve.

FORMULAS for the best method of obtaining any DESIRED FINISH on any fabric cheerfully given.

SURPASS CHEMICAL CO. ... AUTOGYP ... ALBANY N.Y.

This Is What You Save!

30% of Labor
90% of Water
50% of Steam
25% of Tensile Strength
3½% of Shrinkage
4 to 17 Hours Time.

These figures are not guesses, but results from actual tests. They will at once be recognized by any practical mill man who instead of bleaching cotton and cotton goods preliminary to dyeing uses the AUTO GYP PROCESS which in addition to dyeing, removes all specks, motes, shives, etc., in one bath.

If such economies interest you, let us prove them by actual demonstration with your own goods and your own equipment. Write for complete information today.

SURPASS CHEMICAL CO., Albany, N. Y.

Sole Agents for the South
The Color Service Corporation
534 Canal St., New York

Represented in the South by
A. S. Roberts
215 E. North St., Greenville, S. C.

AUTO GYP
Process of Dyeing

Starch

EFFICIENCY and ECONOMY are the watchwords today. Modern mill men who hold to this motto are discarding ordinary; imperfectly refined starches and selecting those special types best suited for their individual conditions.

Some desire increased weight, all need increased strength and better weaving qualities for the warp.

You know the result you seek.

We know and can provide the proper type of Starch.

EAGLE FINISHING
C. P. SPECIAL FAMOUS N

BLEACHING and FINISHING PLANTS have learned that "any old" STARCH or DEXTRINE will not do the work. To secure the proper "feel" the desired weight, the attractive finish, careful discrimination must be exercised in selecting

STARCHES and DEXTRINES

We manufacture all approved varieties.

500 MILL 400 MILL
BLUE RIVER CRYSTAL
DEXTRINES and GUMS

Corn Products Refining Co.

New York

Southern Office *Greenville, S. C.*

Starch

The Grasselli Chemical Co.

"DYESTUFF DEPARTMENT"

Works at:

GRASSELLI, N. J. ALBANY, N. Y.

SULPHUR COLORS: Black, Blue, Brown, Green.
Direct Cotton Colors, Acid and Chrome Colors
MONOPOLE BRILLIANT OIL
Bichromate of Soda Sodium Sulphide
Zinc Dust, Chemicals and Acids

BRANCH OFFICES:

New York	Philadelphia	Birmingham	Charlotte	St. Paul
Boston	Chicago	Cleveland	Cincinnati	Providence
St. Louis	Detroit	New Orleans	Milwaukee	

The Grasselli Chemical Company, Limited

Toronto Hamliton Montreal

Sole Selling Agents for Essex Aniline Works, Inc., Boston, Mass.

JACQUES WOLF & CO.

Manufacturing Chemists & Importers

MAIN OFFICE and WORKS: PASSAIC, N. J.

New York Office: 112 John Street.

HYDROSULPHITES

For All Purposes

All Sizing and Finishing Products for Cotton

Bensapol
Bleaching Oil
Cream Softener
Glasgow Sizing
Levuline
Soluble Oils
White Finish

MONOPOLE OIL

Reg. Trade Mark No. 70991

COSTS and PRICES

The price of an article should always bear close relation to its cost.

Sulphur Black is now selling in America much below its pre-war price, when the present value of the dollar is compared with its 1914 value.

The materials and labor going into the manufacture of Sulphur Black cost 2 to 5 times more than they did in 1914, and are from 25% to 100% higher than they were six months ago.

To sell goods at a price which does not yield a reasonable profit, injures both the buyer and the seller, and no producer of a standard product can continue as a reliable source of supply by so doing.

Price advances made by the Atlantic Company benefit its customers in the same degree as itself, by maintaining it as a reliable source of supply of standard dyes.

Atlantic Dyestuff Company

WORKS: PORTSMOUTH and BURRAGE

MAIN OFFICE, BOSTON

NEW YORK PHILADELPHIA CHARLOTTE
CHICAGO PROVIDENCE

Boston **Philadelphia** **Chicago** **Columbus, Ga.**

Midland Blue R

Midland Vat Blue 5 B

Are Vat Blues of special interest to all manufacturers of fast color Ginghams and Chambrays—of good fastness to washing, chlorine and light—suitable for both raw stock and yarn dyeing. For the same trade we also have some new sulfur colors of extreme brilliancy.

Aniline Dyes and Chemicals, Inc.

Cedar and Washington Streets **New York**

Mercerizing Gassing Bleaching

We have a new and strictly modern plant for mercerizing, gassing and bleaching.

Located as we are in the center of the combed yarn spinning industry of the South, we are enabled to furnish you with the highest quality processed yarns in all numbers.

The American Processing Company

Mount Holly, N. C.

New York Representative:
H. B. ROBIE,
No. 346 Broadway,
New York City.

Selling Agents,
THE RIDDLE COMPANY,
Mariner & Merchant Bldg.,
Philadelphia.

VICTOR MILL STARCH

The Weaver's Friend

It boils thin—it penetrates the warps—increases breaking strength and carries the weight into the cloth. Being thoroughly washed free of gluten and other foreign matter it gives a bleach and finish to the goods that you can get from no other starch.

A trial order will convince you that VICTOR STARCH has no equal on the market.

THE KEEVER STARCH COMPANY, Columbus, Ohio

Southern Agent: MR. JAMES H. MAXWELL, Greenville, S. C.

If you are not already using VICTOR STARCH call on our representative for a demonstration at your convenience

B. & L.

Anti-Chlorine Bleaching Process

FOR COTTON

Simple
Scientific
Safe

BOSSON & LANE
Works and Office, Atlantic, Mass.

"Rubber Covered Rolls"

Roller Economy A. W. Co.---Service

When you compare roll prices—remember that "CHEAP" and "ECONOMICAL" are two different things.

Our rolls represent the UTMOST in economical service BECAUSE—We Never undertake to furnish rolls unless we know for what purpose.

We then GUARANTEE them and live up to this guarantee.

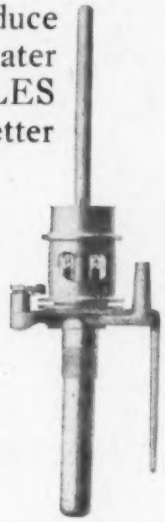
We Furnish RUBBER ROLLS for ALL Purposes.
Put Your ROLL Problems Up to Us.

FOR 25 YEARS SPECIALISTS IN RUBBER ROLLS

The American Wringer Co.
Dept. F WOONSOCKET, R. I.

Modernize your Twisters with Allen Ball Bearing Twister Spindles

Ball Bearing Spindles eliminate friction and heat; reduce maintenance and attention to a minimum; allow greater speed at less power consumption. ALLEN SPINDLES are steadier running, produce more, stronger and better yarn than plain journal twister spindles.



Allen Spindle Corporation

80 Boylston Street

BOSTON, MASSACHUSETTS

SPECIALTIES
SPINDLES & TWISTER RINGS

ELLIOTT A. ALLEN
PRESIDENT

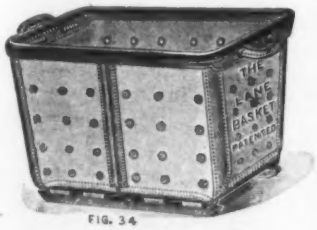


FIG. 34

Lane Steamers made in both oblong and round. Materials used withstand heat, moisture and handling to a degree found in no other basket.

STURDY

Yet not an ounce of Superfluous Weight in

LANE CANVAS BASKETS

FIG. 27

This truck embodies all the advantages of Lane Baskets, plus our specially designed Thread guard Casters which are, IN FACT, NON-CLOGGING. Furnished in either stationary or swivel frame style, of generous diameter and tread.

Standard American Equipment

Write for Catalog

W. T. LANE & BROTHER, Manufacturers Poughkeepsie, N. Y.

Leatheroid
MILL RECEPTACLES

The Truly Permanent Fibre Cars

Leatheroid No. 3 All Fibre Car. Solidly Built. All wearing surface protected.

Leatheroid cars, as all Leatheroid receptacles, are made of "Leatheroid"—the most durable and toughest, smooth fibre known, and the other parts are chosen with care, and put together right.

Leatheroid Cars stand the heaviest loads and roughest usage day after day, year after year, and then show very little effects of wear.

Leatheroid Cars, Roving Cans, Boxes, Baskets, etc., are made in all sizes and shapes.

Sold by Leading Southern Mill Supply Houses.

Rogers Fibre Company
Leatheroid Sales Division
1024 Filbert Street, Philadelphia

Leatheroid No. 2 Steel-Clad Car. Nothing Equals it for Construction, Finish and Serviceability.

Counters Meet The Condition

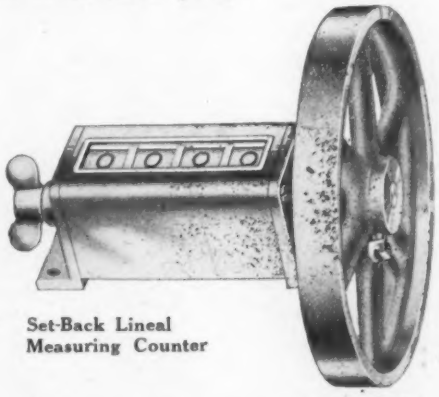
Mill managers planning to reduce the labor cost; many reducing the number of their operatives; all seeking means to more production **per operative.**

Try a closer check-up on each employee's work, to get **closer attention** to work, busier machines, better production-records.

Have the record of each operative where it gets the best results—right in front of the worker—on the dial of a

Veeder COUNTER

That makes everyone pay notice to *what's done* as the hours go by!

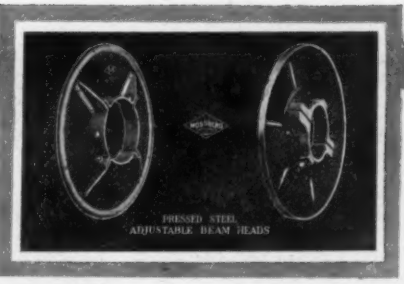


Set-Back Lineal Measuring Counter

This Set-Back Lineal Measuring Counter records the product of machines in **feet,** and measures very accurately the length of cloth passing under it. The straight-face friction wheel is one foot in circumference; each revolution registers one. Will not slip on the finest fabrics. A suitable counter for finishing, drying, dyeing, calendering and inspection machinery. **Complete description in the Veeder Textile Counter booklet**—with numerous other counters for textile machines exclusively. Write for copy.

The Veeder Mfg. Co.

6 Sargeant St., Hartford, Conn.



MOSSBERG

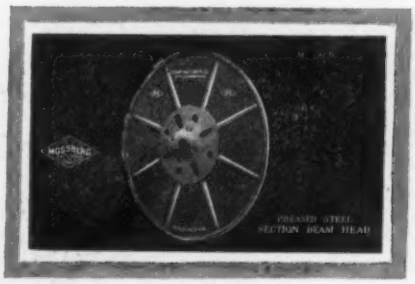
STEEL REELS, BEAMS AND SPOOLS

BEAMS, Spools and Reels made of Pressed Steel are decidedly superior to those made of wood or cast-iron. They are stronger and lighter.

Mossberg Pressed Steel Construction is being utilized by mills the country over. Mossberg Equipment is saving time and money wasted by frequent changing and purchasing.

Write for interesting catalog on Pressed Steel Equipment. It is instructive and valuable.

WALTER I. TUTTLE
President and General Manager
FRANK T. CHASE
Treasurer and Sales Manager
EVERETT L. FORD
Secretary and Superintendent



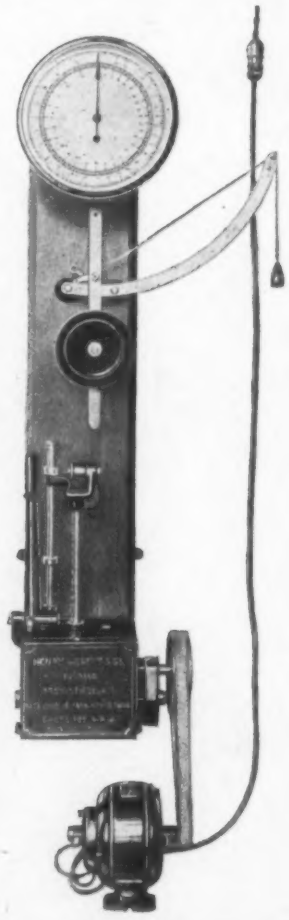
FRANK MOSSBERG COMPANY
WRENCHSMITHS FOR 20 YEARS
ATTLEBORO MASSACHUSETTS

SCOTT TESTERS

SCOTT AUTOMATIC TESTERS not only eliminate all uncertainty due to human influence, but actually save time and money.

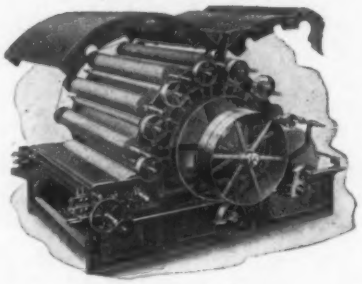
For yarn, cloth, twine, cordage, rubber, etc.

Your successful neighbor uses them.



HENRY L. SCOTT & CO.
PROVIDENCE, R. I.

Smith & Furbush Machine Company
Philadelphia

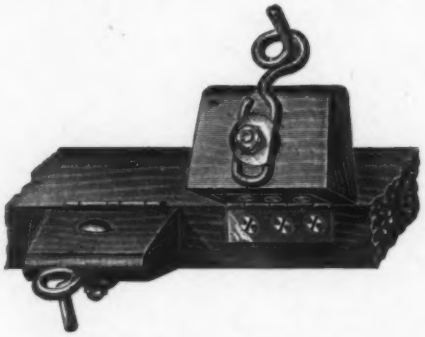


Cotton Waste Card.

Card shown above has been recently designed. It is especially adapted for the making of Absorbent Cotton, Wadding, Batts or Felts of the better grade, etc. Similar cards in sets are used for Cotton Waste Yarns spun on the woolen principle. Ask for circular S-165.

Specialists in all kinds of Waste Machinery.

The Palmer Adjustable Thread Guide



For Ring Spinning and Twisting Frames

Easily adjusted.

Extreme accuracy and permanence of setting.

Cheapest of them all.

Mail guide-block for free sample.

Patented and manufactured by

THE I. E. PALMER COMPANY

Middletown, - - - Connecticut

Receptacles

THAT SERVE YOU BEST

Diamond Fibre Receptacles are an efficient and economical transportation system. They are made of Diamond Fibre, which is tough as horn and almost as hard as iron, yet lighter than aluminum. This material does not dent, crack, break, or splinter. A superior material and superior construction provide an unusual combination of great strength and durability with light weight and convenience.

Your product is protected when handled in these receptacles, because the interior construction is smooth and flawless. For example, Diamond Fibre Seamless Roving Cans are in great demand by mills because there is not a seam or projection to catch a particle of the contents. Furthermore, the close texture and glossy surface of the fibre Receptacles preserve their fine appearance under the hardest usage because the color is **in-built** and the surface does not chip, nick, or wear off.

There is a Diamond Fibre Receptacle for every mill need. Our roving cans, mill boxes, and baskets, doffing cars, gill cans, trucks, barrels, etc., are leaders in their respective fields. Standard sizes and designs, or made to any specifications. Write us your requirements and let us co-operate.

We maintain an office in Greenville, S. C., to serve the Southern mills.

Send for Special Catalogue.

Diamond State Fibre Company

Dept. WZ

BRIDGEPORT, PA., (Near Philadelphia)

In Canada, Diamond State Fibre Co. of Canada, Ltd., Toronto.

Modern Playgrounds Better Communities

Leading industrial concerns recognize the value of the playground, not only to their community, but to their institution as well. Add to the health and happiness of an employe's growing children, and you give to that employe an added happiness and contentment that he carries with him to his work. You promote loyalty, good will and genuine interest.

MEDART
PLAYGROUND EQUIPMENT

For 50 years the Medart Company has been manufacturing and perfecting gymnasium apparatus for vigorous men—an experience that has especially fitted it for the leadership it has always maintained in the development of playground equipment best suited to promote those bodily and mental qualities which mold today's childhood into tomorrow's man- and womanhood.

Send for Catalog "L."

Catalog "L" fully describes Medart Playground, Swimming Pool, Gymnasium and Locker Room Equipment. Contains valuable suggestions for playground installations. It will be sent gladly to anyone requesting it.

Fred Medart Manf'g. Co.

Potomac & DeKalb Sts.

St. Louis, Mo.

Gordon Lewis, District Manager, Walton Bldg., Atlanta, Ga.

Something New

Noticing the faults of leading counters on the market and realizing the need for a more perfect counter that could be used for every purpose, in the mill, we have at last perfected a simple, sturdy, fool-proof, error-proof counter with many new features. In the severest kinds of tests with other counters, the

Universal Counter

demonstrated its superiority by continuing to function accurately and perfectly after the others had fallen to pieces.

We invite you to place the Universal Counter alongside of any other counter on the market and make comparisons. You will find that its steel construction makes it sturdy and that it will stand up and perform accurately under 1200 r.p.m. where others are accurate only up to 300 r.p.m. Its number wheels are all alike and interchangeable, they are locked in position when not counting—cannot count more than one at each operation.

The Universal may be used as a stroke or a revolution counter. Its simplicity and strength makes it error-proof, fool-proof, tamper proof.

Made in 3 types, outside-reset, inside-reset, and non-reset.

Write today for prices and full information about the Universal Counter inclusive features.

Precision Machine Co., Inc.
Milwaukee, Wis.

The Fibre is the Life of the Roving Can

KEYSTONE "PEERLESS" SEAMLESS ROVING CANS

owe their long life, strength and handsome appearance to Keystone Fibre.

It is the lightest and strongest fibre made.

There are no seams, rough edges, bolts or rivets in Keystone "Peerless" Cans.

Full line of Keystone Holloware for mills shown in our booklet. Send for it.

Your mill supply house can fill your order.

Keystone Fibre Company
Box 141-B Yorklyn, Delaware

WHILE YOUR MILL IS MAKING SUBSTANTIAL PROFITS

is the time to equip with loom-harness whose service is measured from year to year instead of month to month.

"DUPLEX" FLAT STEEL HARNESS can show records of ten to fifteen years service at an average cost of ONLY 10c to 12½c PER SHADE PER YEAR with high cloth production and low percentage of seconds.

Let us quote you.

STEEL HEDDLE MFG. CO.
GREENVILLE PHILADELPHIA PROVIDENCE
Southern Office
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Hampton Smith, Southern Manager.

AMERICAN SUPPLY COMPANY
PROVIDENCE, R. I.

MANUFACTURERS OF

Loom Harness,
Weaving Reeds,
Oak Tanned Leather
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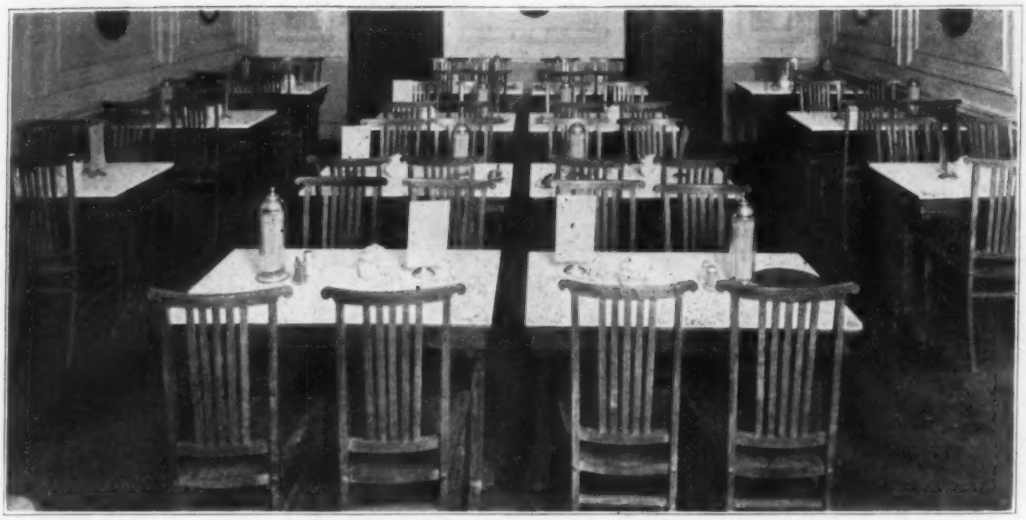
Etc.

We make a specialty of Harness for Warp Drawing Machines

NOTE—No orders too large for our capacity. None too small to receive careful attention.

THE WRIGHT EQUIPMENT
For Your Mill or Factory



A CLEAN SANITARY DINING ROOM

We build special equipment for your cafeteria, kitchen and dining room complete in every detail. Shipments made promptly. Write for information how to increase your production.

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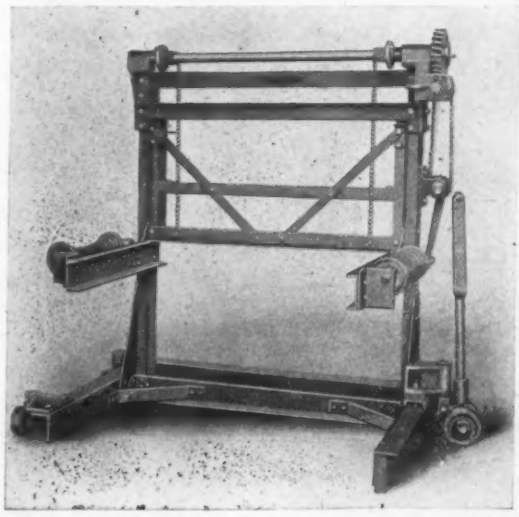
Hotel, Restaurant and Institution Equipment

THE WRIGHT GOODS THE WRIGHT PRICE THE WRIGHT SERVICE



One Man Handles All Beams

Our portable elevators have many applications and serve many purposes around the mill. The design shown above is saving time and labor for mills, as with it one man can handle the heavy warp beams, move them about from place to place and set them in position on the loom.

Without obligation, one of our representatives will gladly call on you and tell you frankly what our equipment can do for you.

REPRESENTATIVES FOR

Economy Engineering Co., Tiering Machines.
Automatic Transportation Co., Storage Battery Trucks.
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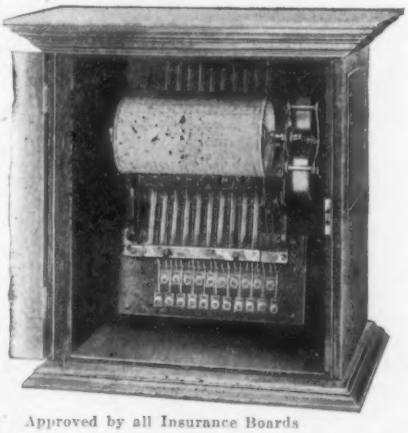
"SERVING SOUTHERN CONCERNS"

J. D. COLLINS Ninth Floor Grant Bldg. **ATLANTA, GA.**

THE BOSTON MAGNETO RECORDER



THE LAST WORD IN WATCHMAN'S CLOCKS

(STATION)

Approved by all Insurance Boards

This **Tri-Record Clock** furnishes a clear and separate registration for Saturday Night, Sunday and Sunday Night without changing the dial.

Estimate for complete installation cheerfully furnished on request.

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ECO CLOCK COMPANY

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Let us submit prices and samples on WARPER and TWISTER SPOOLS. Plain wooden head and metal shield. A list of Southern Mills using spools given on request.

Greenville Spool & Mfg. Company

Greenville, S. C.

Cypress Tanks
Wooden Packing Cases

ALL STYLES

Manufactured From

GEORGIA PINE POPLAR CYPRESS
WHITE PINE and GUM

Your Inquiry Solicited

Hightower Box & Tank Co.

Corner Humphreys and Glenn Streets,
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"Fun-Ful"
Improvements
All the Time

"Fun-Ful" Ocean Wave No. 201

Note the new and exclusive features in the Ocean Wave, insuring increased safety, pleasure and durability.

JUST THE THING FOR THE KIDDIES.

We Have

"Everything for the Playground"

Send for new catalog No. 5.

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CONWAY BUILDING
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FACTORIES:
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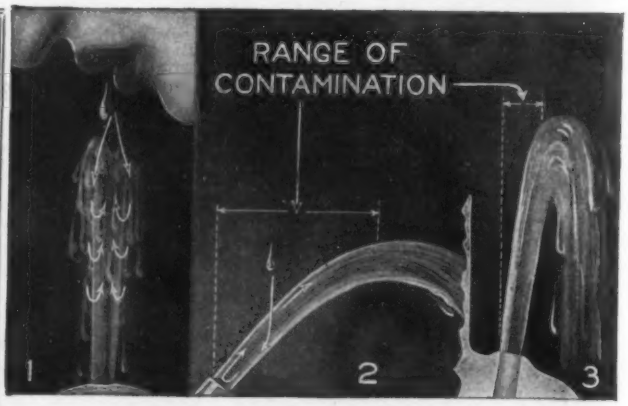


Don't Risk the Health of Your Operatives

Thousands of operatives are being daily subjected to disease through drinking fountains now in common use—fountains with a vertical stream that is almost as bad as the "public" drinking cup.

Science has condemned the vertical stream fountain and is now recommending the.

R-S Vertico-Slant Stream Fountain

which is beyond doubt the most sanitary fountain because of the slight slant in the stream as shown in No. 3 of illustration above, which prevents water which has touched the lips from returning to the nozzle and the nozzle itself is buried so lips cannot touch it.

Write today for our new 74-page catalog.

RUNDLE-SPENCE MFG. CO.
MILWAUKEE WIS.

Your Verdict

after installing employes'

LUNCH ROOM AND CAFETERIA EQUIPMENT

from the Chattanooga Queensware Company will be an enthusiastic "O. K."

In our warehouse at Chattanooga we have a line complete in every detail;—from steam tables to salt shakers, everything you will need, is here, ready to be shipped to you on a moment's notice.

Dishes and glassware sturdy enough to withstand the hustle and bustle of busy days—yet pleasing and tasteful enough to stimulate the appetite; dishwashing machines that are effective and swift,—every cooking and serving utensil needed is waiting your command.

But that isn't all. Don't forget the PRICE. Besides giving you the highest quality throughout, the chances are we can save you a great deal of money as well, and that is worth investigating, isn't it

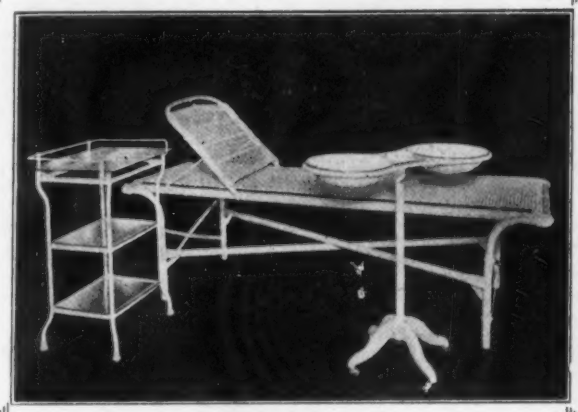
Won't you drop us a line and let us figure with you?

Chattanooga Queensware Company

CHATTANOOGA, TENNESSEE

F. H. Thomas Co.

Boston, Mass.



A First Aid Room or an Emergency Hospital For Your Employers will

Decrease your liability for industrial accidents.

Decrease time lost through temporary incapacity of your workers.

Decrease needless suffering from minor injuries and prevent minor injuries from developing into serious cases.

Increase morale and loyalty among your employees and give you opportunity to show your interest in the welfare of your workers.

The F. H. Thomas Company has equipped First Aid Rooms for over four hundred factories and mills, who have appreciated these facts, including the following Southern mills:

WINSBORO MILLS, Winsboro, S. C. WATEREE MILLS, Camden, S. C. WHITNEY MILLS, Whitney, S. C.

A modern Thomas equipped emergency room will put you also among the progressive owners who are saving money and advancing the conditions of their workers.

Write for information and advice, stating, if possible, the number and nature of your accidents. Southern Representative.

F. H. Thomas Co.

689-691 Boylston St.

Boston. Mass.

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CONVINCING COMPARISON

SHOWS THE SUPERIORITY OF

SIGNODE SYSTEM

OVER THE USUAL BALE TIE.

LET US SEND YOU FULL DETAILS

SIGNODE SYSTEM, INC.

CHICAGO ATLANTA

Boston New York Philadelphia San Francisco Toronto

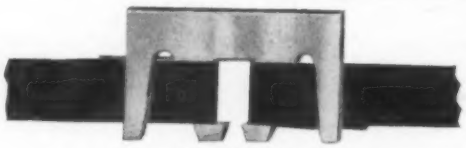
$\frac{5}{8}$" x .015 SIGNODE TIE	COSTS 12 % LESS PER FOOT	HOLDS UNDER 800 LBS. PULL	NO "SPIDER" TO INJURE HANDS
Compared with			
USUAL $\frac{5}{8}$" x .017 BALE TIE	COSTS 12 % MORE PER FOOT	BREAKS UNDER 500 LBS. PULL	DANGEROUS "SPIDER" OFTEN PRESENT

CEMENT COATED
CLOUT
BASKET
HOOP FASTENERS
TACKS

NAILS

KEG LOTS
CAR LOTS
CARGOES
QUALITY GUARANTEED

J. R. REGNAS & CO., Atlanta, Ga.



Acme No. 9 Bale Buckle

USE

ACME

Cold Rolled Bale Ties

with

Acme Bale Buckles

or

Acme Seals

Acme Steel Goods Co., Mfrs.

Atlanta: 10 Tift St.
Brooklyn: 167 41st St.
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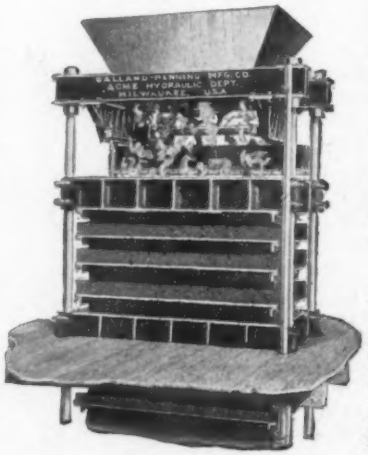
Acme Nailless Strapping with Seal applied



Acme Doorless Baler

Patents Pending.

You are aware that the doors and locks of all Balers are the chief source of trouble and expense. Locks are dangerous and must be frequently adjusted and repaired. Also consider the great saving in labor which means increased output.

Built in numerous sizes and pressure capacities

Write for details.

Galland-Henning Mfg. Co.

Milwaukee, Wis.

Southern Sales Representatives
THE LOVINGOOD COMPANY,
Atlanta, Ga.

White Hickory
BUILT ON HONOR

Judge Them By The Miles of Service

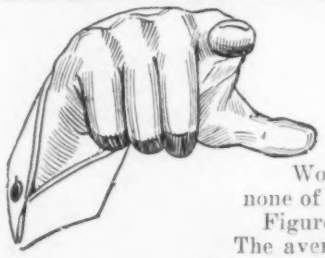
Miles of Service are assured by these Units.
Continental Red Seal Motor, Eiseman High Tension Magneto, Sheldon or Timken Worm Drive Axles, Timken Bearings and all other units of highest standard grade.

The initial cost of a motor truck is only a percentage of the total transportation cost. It is *Miles of Service* that count.

You can rely on White Hickory Trucks. They stand up under adverse conditions—they give miles of service at an extremely low hauling cost, with any kind of a load, on every kind of road.

Back of the White Hickory Truck is the forty year record of the White Hickory Wagon.

White Hickory Motor Corporation
Atlanta, Georgia, U. S. A.



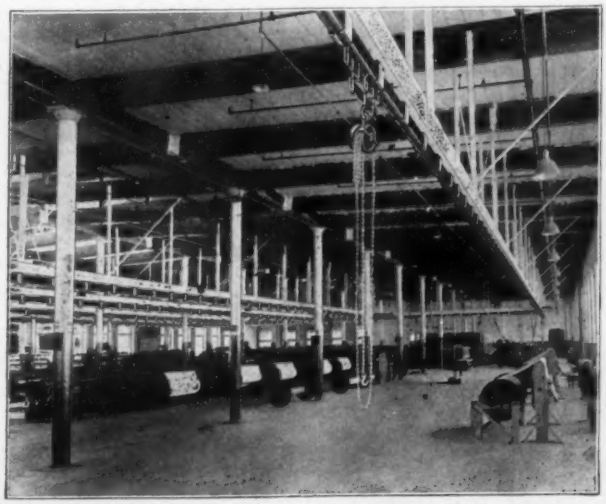
CAN YOU AFFORD "OVERWAY"— FOR "TRUCKING" IN YOUR PLANT?

Indeed you're losing money—actually, if you do not use "OveR-Way" Conveying Equipment.

Worse than that, you're paying for "OveR-Way" equipment and getting none of its benefits.

Figure it out for yourself.

The average man can convey on a wheelbarrow or shop truck 200 to 500 pounds. The same man can handle up to 8,000 pounds with less effort by using



OVERWAY

Monorail Conveying Equipment

The majority of equipments we have installed saved in labor alone their cost in from six to twenty-four months.

Our engineering department is maintained for the express purpose of designing special, or adapting standard equipments to suit requirements for the economical handling of your loads.

Write for particular information, which we will be glad to furnish without obligation.

Richards-Wilcox Mfg. Co.
A Hanger for any Door that Slides
CHICAGO ST. LOUIS LOS ANGELES PHILADELPHIA **AURORA, ILLINOIS, U.S.A.** LONDON, ONT. BOSTON NEW YORK MINNEAPOLIS SAN FRANCISCO

TEXTILE SCALES

No. 5005. Gives yards per pound
No. 5000. Gives ounces per running yard
No. 5010. Gives yarn number for cotton yarns
No. 5015. Gives yarn number for woolen yarns
Used by U. S. War and Navy Depts.
CHRISTIAN BECKER'S ANALYTICAL AND SILK BALANCES

THE TORSION BALANCE CO.
Main Office, 92 Reade Street, New York
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BRANCHES: 31 W. Lake St., Chicago. 49 California St., San Francisco.

THE JOHNSON FRICTION CLUTCH

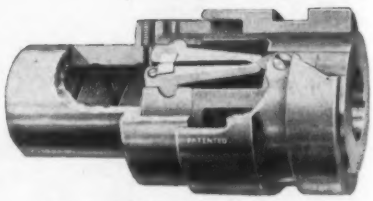
A Better Control for Textile Machinery

You will find the Johnson Clutch a most satisfactory means of driving textile machinery. More efficient and more convenient than the tight and loose pulley. Equally desirable on motor drives.

Made in both single and double types to fit standard pulley sizes. Clean, compact and durable. Grips smoothly and is easily adjusted to any tension.

Ask for the Johnson Clutch on your new machine equipment.

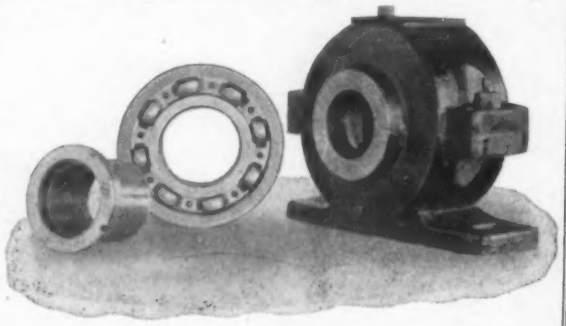
Ask for our Catalog "G"



Single Clutch Broken Away.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Better Beater Bearings—Better Lap

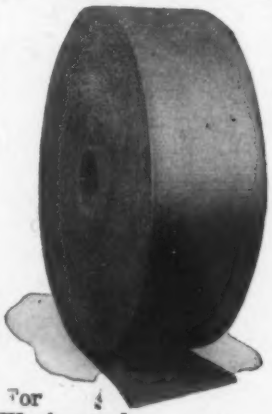


Ball bearings on picker beaters save power, oil, time, labor, and material, and practically eliminate maintenance expense.

They permit absolutely exact and permanent adjustment of beaters, which means evener lap with a better selvedge. They keep all the oil in the box and off of the lap. They eliminate the shutdowns caused by hot boxes. They will pay for themselves in less than two years.

You either have them or need them. For information write to

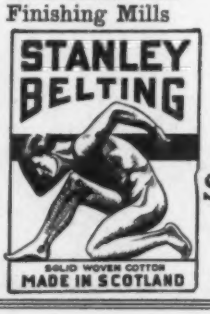
AldricH MachinE Ball WorkS Bearings
Greenwood, South Carolina.



Stanley
Solid Woven Cotton Belting
overcomes unusual conditions

For Woolen and Knitting Mills, Dye Houses, Bleacheries and Finishing Mills

No laps or plies to come apart



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The W. V. Green Co.....Atlanta, Ga.

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CRESCENT
BELT FASTENERS
MAKE GOOD BELTS GIVE BETTER SERVICE

THEY DO AND MORE

Write for details or ask your local dealer

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CRESSON-MORRIS CO.

POWER TRANSMITTING MACHINERY

Merit Plus Recognition

"The heights by great men reached and kept were not attained by sudden flight."

Time, skill and effort must also proceed merit as surely in machinery as in men.

Time, skill and effort must also proceed merit in order to obtain and maintain for merit the recognition it deserves.

The great number of large installations of Cresson-Morris Power Transmitting Machinery is proof of both the merit and the recognition of the merit that nearly three score years of skill and effort have endowed it with.

The cumulative knowledge of all this experience is always available to you in the recommendations of our engineers.

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Branch Office 141 Milk St., Boston, Mass. 20

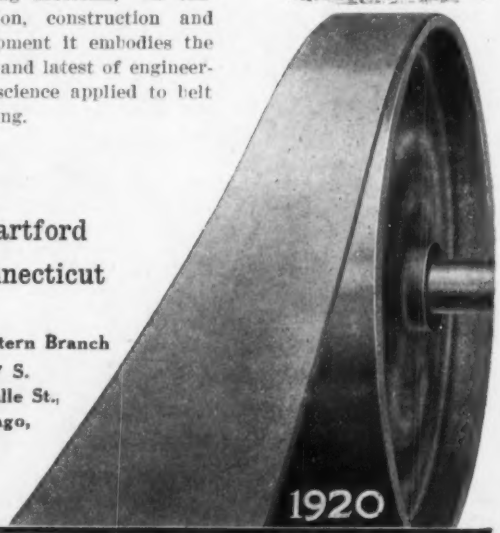
JEWELL LEATHER BELTING

150 Years

From tanning in Asahel Jewell's log cabin in 1770 to the new 1920 Jewell Plant is a mighty long step—yet, after all, it is but one step—

one step that never halted in its forward move toward better belting and a wider scope of Jewell Service.

Just completed, the new Jewell Plant steps to the front of America's great belting factories. In conception, construction and equipment it embodies the best and latest of engineering science applied to belt making.



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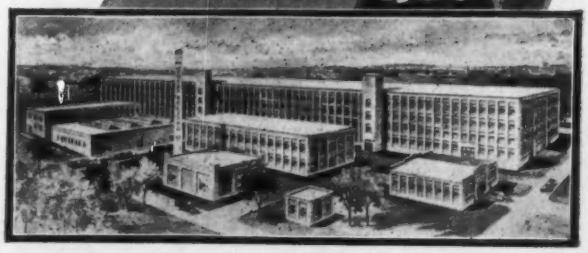


Creosoting Industrial Timbers Is ECONOMY

CARBO, FIRST GRADE REFINED CREOSOTE OIL

Meets all requirements of the United States Government Shipping Board Emergency Fleet Corporation, Specification G174-A-1 and the United States Railroad Administration, Specification R-828-A.

The cheapest sap wood timbers, especially sap wood pine shingles treated with this oil **will outlast the highest grade woods untreated.**

NUMBER ONE CRUDE CREOSOTE:

An economical wood preservative for open tank or brush treating wood shingle roofs, or structural timbers. This material when properly applied greatly lengthens the life of the cheaper timbers.

PURE CREOSOTE DISINFECTANTS COEFFICIETS ONE TO TWENTY.

Each shipment tested by Ridell-Walker method and guaranteed as to carbolic strength.

Our standard disinfectants are free from sediment and tarry matter and upon dilution with water form rich, cream-like emulsions (no oily float on top nor deposit at bottom). Emulsions do not separate on standing.

Our disinfectants are manufactured by the largest Manufacturer of coal-tar products in America and are absolutely uniform.

Gulf States Creosoting Company

17 Sampson Street, ATLANTA, GA.

AGASCO ROOFING FELT

LASTS INDEFINITELY

—for the wide expanse of industrial roof that must be covered effectively but at moderate cost—Withstands the extremes of weather—Resists the elements.

We have it or will make it to suit almost any specification, if your order warrants that.

AGASCO ROOFING PITCH

—prolongs the life of your old roof
—Made according to YOUR specification.

AGASCO PAINTS AND CREOSOTES

ATLANTA GAS LIGHT Co

ROOM 235, 20 FAIRLIE ST.

VOGEL

PATENTED

Frost Proof Closets

350,000 giving satisfaction. Save Water; Require no Pit; Simple in the extreme. The most durable water closet made. In service winter and summer.

No. 1

Enameled roll flushing rim bowls.

Heavy brass valves.

Strong hardwood seat. Galvanized tank.

Malleable seat castings will not break.

Tested under hydraulic pressure before leaving factory.

ASK YOUR JOBBER

JOSEPH A. VOGEL CO.
WILMINGTON
DELAWARE

Kaustine

Sanitary Sewage Disposal Systems

Better Morale in *Your* Mill Village

THE better class of workmen ***seek*** the ordinary conveniences and comforts of home life, which you ***demand*** for yourself. They know that their productive power and earning capacity are dependent upon their physical condition as well as upon their mental state.

Kaustine Sanitary Equipment installed in mill homes provides the comfort and refinement essential to healthy, contented inhabitants of unsewered mill villages.

It is complete and scientific in every respect—endorsed by health boards everywhere, because of the thorough and adequate manner in which it disposes of fecal matter immediately after discharge from the body. It affords the convenience of a city water toilet.

To insure an ample supply of reliable labor, every mill village in an unsewered area should be equipped with a Kaustine Chemical System, or Hydro Kaustine Septic Tanks. It is welfare work that returns big dividends.

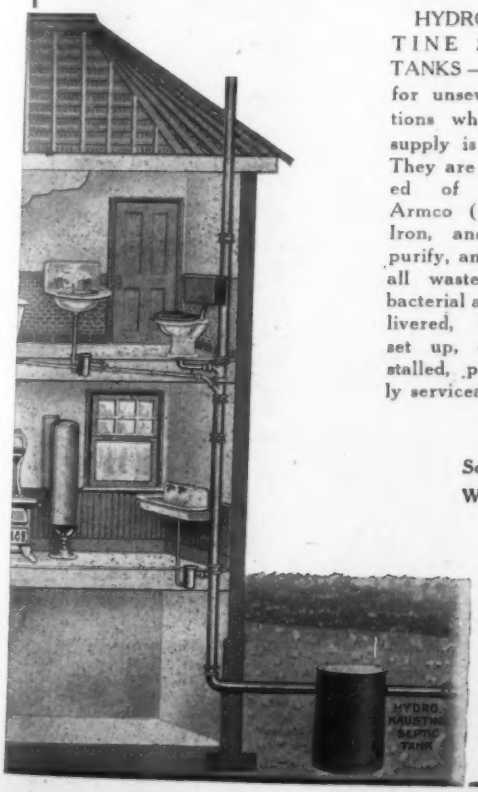
Send for our catalog H, which shows how Kaustine equipment solves the problem of sanitation in unsewered areas, and provides the convenience that keeps men healthy and satisfied.

KAUSTINE COMPANY, Inc.

Manufacturers and Sanitation Engineers

Buffalo, N. Y. Toronto, Can. Melbourne, Australia.

Southern Representatives
J. L. Murphy, Charlotte, N. C.
McKee & Son, Atlanta, Ga.



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KAUSTINE (CHEMICAL) TOILET SYSTEM—for unsewered sections WITHOUT WATER supply. Disposes of sewage thru chemical action which liquefies and purifies it. Perfect ventilation system makes it odorless. All metal parts constructed of enameled Armco (the pure) Iron. No pumping or dipping of tank contents — turning drain valve disposes of purified contents through leaching pool.

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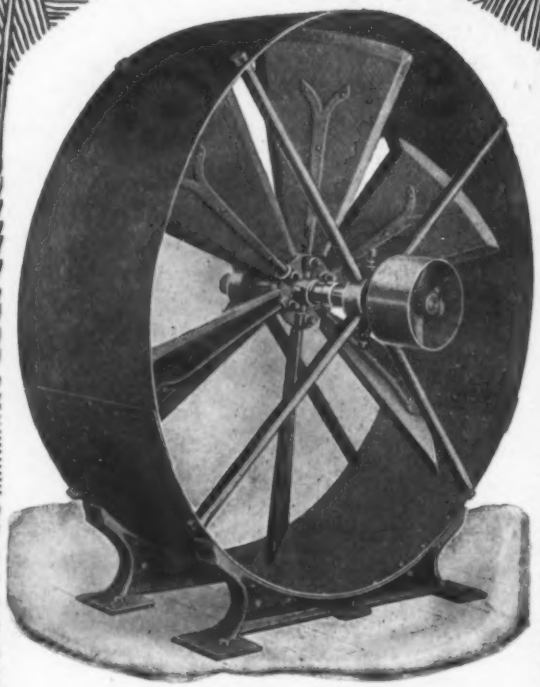
Some desirable territory open.
Write Kaustine Company, Inc.,
Buffalo, N. Y.

BETTER
Ventilation
FOR TEXTILE MILLS



Perkins Fans

will best solve the cooling and ventilation problem in your mill and can be placed almost anywhere, because of their light weight, steel frame construction.

They are noiseless, and because of end thrust ball bearing collars, self oiling journal boxes, they require no attention and always run smoothly, and without vibration.

Less power is required for their operation.

Write today for bulletin.

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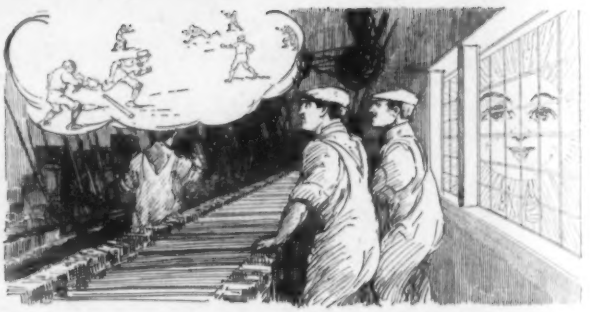

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And Bring
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INTERIORS made bright with Hampden "*Sunray*" Mill White Paint help to counteract that Summertime "outdoors" feeling which makes minds wander and hands slow up.

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Good Paint Makers for over 67 years
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MILL WHITE

Stewart Silk Company mill, just completed at Easton, Penn. Designed and constructed by Thompson & Binger, Inc.

Essentially a Textile Building

Thompson & Binger's contribution to this new mill was more than engineering and construction skill. We contributed practical textile experience to the design which makes this building essentially a textile mill.

Incidentally, this building was designed and constructed on a single contract, on the cost-plus basis, and delivered to its owner for **less than estimated cost.**

5 At present we are constructing buildings in five states.

THOMPSON & BINGER INC.
ENGINEERS & CONTRACTORS
CONSULTATION-DESIGN-CONSTRUCTION

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SYRACUSE
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Finding room for growing departments

CRAMPED quarters caused trouble for the Queen City Cotton Company, Burlington, Vt. The President called in Lockwood, Greene & Co. Our recommendations included increasing floor area, rearranging old machinery and adding new.

One of the interesting problems—how to add a fourth story to the mill—necessitated splitting the roof in quarters and raising it. The new layout of departments has justified the undertaking by a decided gain in quality and quantity of cloth.

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Your inquiries are invited.

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It helps speed up production; first, by making all work easier to see; second, by eliminating those mistakes due to dark working conditions.

Light tends toward cheerfulness. Dixielite goes far towards keeping your employees happy and contented; and contentment has an actual dollar and cents value to your organization.

DIXIELITE

The Original Daylight Saver

It is the perfect white finish for walls and ceilings of mills, factories, and warehouses. Once applied, Dixielite spreads daylight evenly and brilliantly to every corner of the room. As long as there is light outside, Dixielite works inside. It lowers electric bills. It makes a place more sanitary. It saves the eyes of your workmen. Dixielite is made in gloss, semi-gloss, and flat finishes. Let us send you a sample.

Bay State Liquid Paints answer every painting question. There is a paint, stain, varnish or enamel for every conceivable purpose. INOROUT, the all-round varnish is equally superior on inside or outside jobs. It can't be beaten.

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For Shingle roofs and weather-boarding

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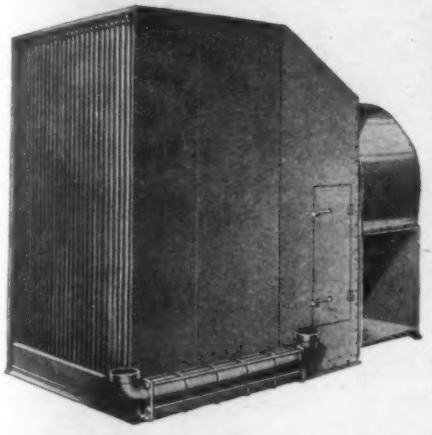
Manufacturers of paints, stains and varnishes
Jobbers of window and building glass, and wallboard



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Cut shows a compact heating unit as regularly installed by us for large Factory and Industrial Heating and Ventilating units. The large range of adaptability for our fans, heaters, air washers, etc., is clearly brought out in catalog No. 70.

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If we cannot truthfully show you where a SERI-VANE FAN can do your work better and save you money at the same time, we say so frankly. We do not try to force a sale but gladly make any suggestions or recommendations which our experience knows to be practical and feasible, and then allow the customer to decide freely from the facts presented. There is positively no string attached to our engineering advice.

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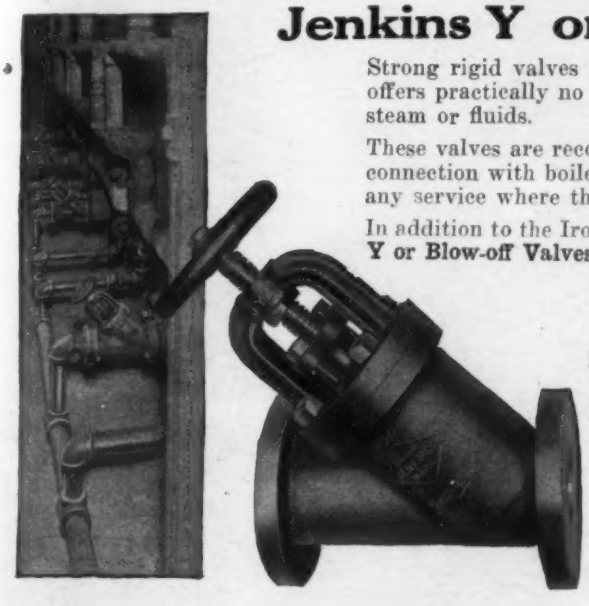

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Strong rigid valves with a full, straight opening that offers practically no obstruction to the free passage of steam or fluids.

These valves are recommended and extensively used in connection with boiler blow-off systems and for almost any service where thick fluids are handled.

In addition to the Iron Body, standard pattern, **Jenkins Y or Blow-off Valves** are made in the following types: Brass, Standard; Brass, Extra Heavy; Iron Body, Extra Heavy.

Genuine Jenkins Valves are known by the Jenkins "Diamond Mark"—obtainable through supply houses everywhere.

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Jenkins Valves

SINCE 1864

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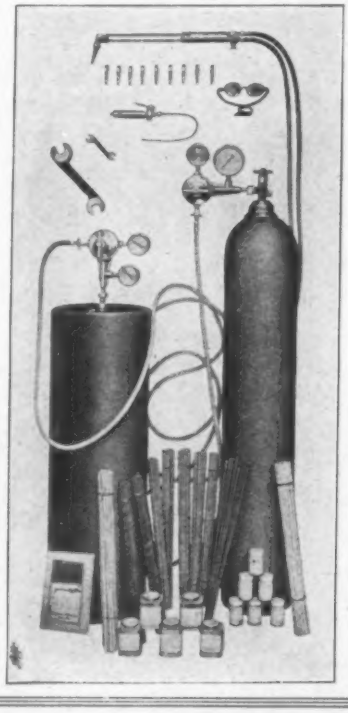

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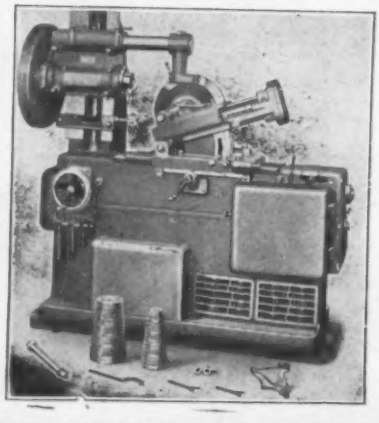

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need no introduction to the textile mills of the South, as we were the first to develop this process in this section for welding all broken parts of textile machinery.

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The Ratchet Features enables the operator to use this Tool in a very narrow space and at the same time secure a very great leverage.

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Packed in individual Paper box.

Weight, 5 ounces.

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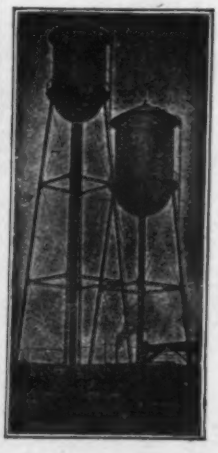

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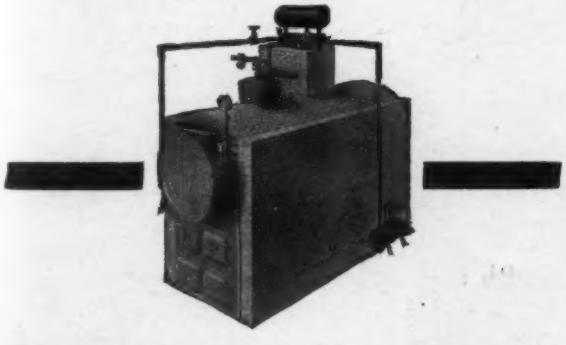

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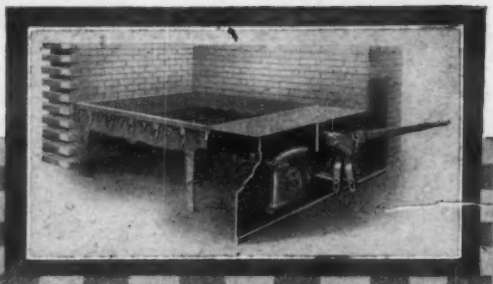
For Dominion of Canada.

Morehead

"BACK-TO-BOILER-SYSTEM"



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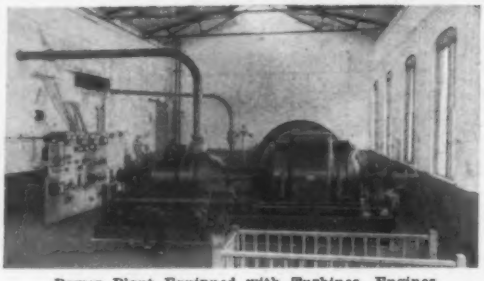

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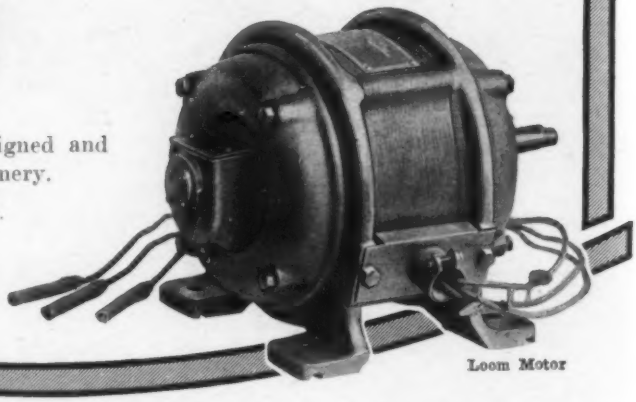

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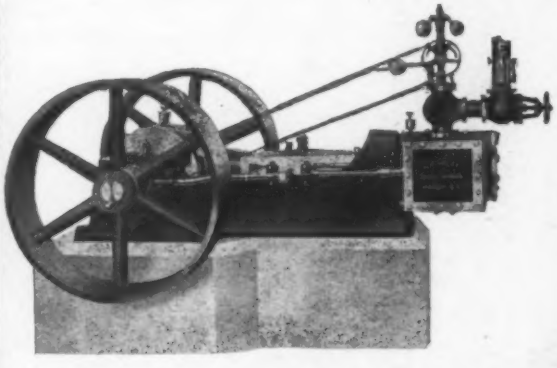

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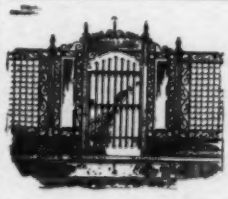

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Selling Direct to Consumer.
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For Weaving, Knitting and all Purposes

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The Recognized Standards of Quality

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The manufacturers of a number of America's well known textile products can vouch for the strength, uniformity, cleanliness, and better weaving and knitting qualities of our yarns.

The yarns we spin for knitting, weaving, laces and converting, are furnished in all twists on skeins, cones, tubes and warps:

36s to 80s Single and Ply Combed Peeler Right Twist. 36s to 50s Single and Ply Double Carded Peeler, Right or Reverse Twist.

20s to 60s, 2, 3, and 4 Ply, Combed Peeler, Reverse Twist.

Our products are sold direct and exclusively through our General Sales Offices:
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H. A. FLORSHEIM, Sales Manager
Long Distance Phone: Gramercy 812
New England Representative
H. D. Skinner,
212 Summer St. Boston, Mass.

Gray Manufacturing Co.
Arrow Mills, Inc.

Parkdale Mills, Inc.
Flint Manufacturing Co.
Arkray Mills, Inc.

Arlington Cotton Mills
Myrtle Mills, Inc.

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You need The Citizens & Southern

Capital and Surplus $4,500,000

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Hundreds of direct correspondents all over the south makes it possible to give you practically the same service wherever you want it.

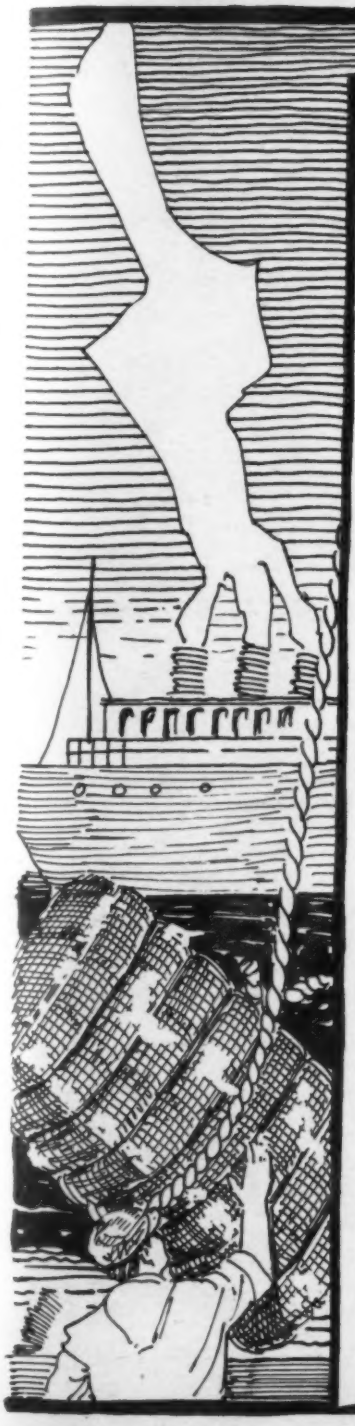
The Citizens & Southern Bank

Atlanta—Marietta at Broad

Savannah Macon Augusta

No account too large, none too small"

KEEP The CROP MOVING



"Shawmut Bank Has Helped" To Move Crops Since 1836

For more than eighty years the National Shawmut Bank of Boston has been identified with the development of the cotton industry from field to factory.

The rehabilitation of Europe is largely a problem of securing raw and manufactured cotton. Conditions at home and abroad demand more than ordinary attention to the questions of markets and financing on the part of the American cotton manufacturer and cotton grower.

The National Shawmut Bank of Boston places at the disposal of American cotton exporters and manufacturers, whether for the financing of export shipments of raw staple or of manufactured goods, or of stocks in warehouses, the benefit of intimate knowledge of market conditions gained through years of contact with every phase of the cotton industry.

THE NATIONAL SHAWMUT BANK OF BOSTON

Capital, Surplus and Undivided Profits over $22,000,000.

1865 The Oldest National Bank in the Cotton States 1920

The Atlanta National Bank

and the

Buying Power of the Southern Farmer

In 1919 the total crop valuation of the ENTIRE UNITED STATES according to the United States Agricultural Bureau, amounted to $15,790,289,000.00.

The same authority gives the THIRTEEN SOUTHERN STATES credit for having produced $6,472,907,000.00 of this amount, showing that

The South is producing 41.5 per cent of the Agricultural Products of the ENTIRE COUNTRY.

Crop increases for 1919 over 1918 in the South amounted to 26.6 per cent., while the increase for all other states was only 6 per cent.

The crops of the South for the five-year period from 1913 to 1917, inclusive, and before the present high prices for cotton were in effect, showed an increase of 202 per cent, while the increase for the country as a whole was only 188 per cent.

Farming methods in the South are being improved every year. SCIENTIFIC CROP ROTATION and DIVERSIFICATION are being practiced, and we believe that the NEXT FIVE-YEAR PERIOD WILL SEE THE SOUTH PRODUCING MORE THAN FIFTY PER CENT OF THE CROPS OF THE ENTIRE COUNTRY.

The Atlanta National Bank has the same interest in the Agricultural Industry that all good citizens should have in every industry or enterprise that has a direct and important bearing upon general prosperity.

So long as the BUYING POWER of the SOUTHERN FARMER is at its present and prospective high point the stability of Southern business is assured.

The Atlanta National Bank

Resources More Than $30,000,000

Classified Opportunities.

Wanted—Salesmen.

Salesmen calling on the textile mills, and interested in new lines of machinery, paints, building supplies or chemicals, either as a side line or exclusively will find it profitable to write, giving experience, territory covered and other details. Correspondence strictly confidential. Cotton, 1021 Grant Building, Atlanta, Ga.

Positions Wanted

WANTED—Position as superintendent in a small mill or overseer of carding in a large mill. Have had seven years experience as overseer of carding in large mills; also experience in spinning and weaving. Textile graduate, 1909. Can handle almost any position in a mill. Can furnish first class references as to character and ability. Address Box 17, care COTTON, Atlanta, Ga.

RATES:

WITHOUT DISPLAY.

"Positions Wanted" 3 cents per word per insertion. Minimum charge 50 cents. Payable in advance.

"Positions Open" and other undisplayed advertisements, 4 cents per word per insertion. Minimum charge $1.00. Payable in advance.

(*When replies are to be received in our care, allow four words for box address.*)

DISPLAYED.

"For Sale" and all other advertisements using bold-face type or otherwise displayed, $2.00 per inch per insertion.

Rates for larger spaces furnished on application.

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S. S. STORER, M.E., C.E.
Complete plans for
Textile Mills, Commercial Buildings, Bridges.
Personal Attention. Fees Reasonable.
Atlanta, Ga.

For Sale

New and Second Hand

ENGINES

Corliss Automatic and Slide Valve

BOILERS

Pumps, Hoisting Engines, Gas and Gasoline Engines.

MACHINE TOOLS

Lathes, Planers, Shapers, Drill Presses, etc.

WOOD WORKING

Planers, Molders, Band Saws, etc.

ELEC. MACHINERY

Dynamos and Motors

AND SUPPLIES OF ALL KINDS

FRANK TOOMEY, Inc.,

127-31 N. Third St.

Philadelphia, - Pennsylvania

2 Single Beater H & B Breaker Lapper, complete with Feeder, ball bearing beaters and fan.
4 40-inch H & B Finishers.
1 10 x 5 Lowell Slubber, left hand, 80 spindles.
2 8 x 4 Lowell Speeders, 120 spindles each.
5 8 x 4 Providence Speeders, 104 Spindles each.
12 Whitin Spinning Frames, 2¾ ga., 1¾ ring, 160 spindles each, now running.
4 Fales & Jenks Spinning Frames, 2½ ga., 1½ ring, 208 spindles each, now running.
6 Collins Bros. Twisters, 3½ ga., 2¼ ring, tape driven spindle, 160 spindles each, A-1 condition.
2 Hopedale Box Head Type 3½ ga., 2½ ring, 136 spindles each.
2 Fales & Jenks, 4-inch ga., 3-inch ring, 128 spindles each.
2 Boyd, 4-inch ga., 3-inch ring, 166 spindles each.
2 Whitin Quillers, 378 ends each, A-1 condition.

THE ATLANTA TEXTILE MACHINERY CO. Austell Bldg., Atlanta, Ga.

Have You?

Have you any proposition to put before the executives in the textile mills of the South? Anything to sell or buy that they may want or have? Do you want a better position or do you want a good man to fill a position?

Whatever your message, this Classified Opportunities" section of COTTON is the logical place for the announcement of you requirements.

It's the meeting place for Employer and Employee, and a good salesman in print for anything you want to dispose of.

A little ad won't cost much. Try it for a month or so

Buyers' Index

Acetylene Welding Apparatus.
(See Welding Apparatus.)

Acteylene Gas.
Commercial Acetylene Supply Co.
Linde Air Products Co.
Oxweld Acetylene Co.
Prest-O-Lite Co.
Southern Welding Co.
Standard Gas Products Co.
Waterhouse Welding Co.

Accountants.
(See Auditors and Accountants.)

Air Brakes.
Allis-Chalmers Mfg. Co.

Air Washers
American Blower Co.
Carrier Eng. Corp.
New York Blower Co.
Parks-Cramer Co.
Sturtevant Co., B. F.

Air Conditioning Systems.
(See Humidifying Apparatus.)

Albene.
Roessler & Hasslacher Chemical Co.

Alkalies.
(See Dyestuffs and Chemicals.)

Aniline Colors.
(See Dyestuffs and Chemicals.)

Anti-Chlorine.
(See Dyestuffs and Chemicals.)

Aprons-Rub.
Ladew & Co., Inc., Edw. R.
Smith & Furbush Machine Co.
Graton & Knight Mfg. Co.

Architects and Engineers.
American City Eng'g Co.
Draper, E. S.
Ferguson Co., John W.
Lockwood, Greene & Co.
Robert & Co.
Sirrine, J. E.
Thompson & Binger, Inc.

Ash Handling Machinery.
(See Coal Handling Machinery.)

Asphalt Slate Shingles.
(See Slate Asphalt Roofing.)

Auditors and Accountants.
American Audit Co.
Ernst & Ernst.

Auto Trucks.
(See Trucks—Auto.)

Automatic Controllers (Temperature.)
See Temperature Controllers.

Automatic Loom Attachments.
(See Loom Attachments.)

Automatic Feeds for Cotton.
Phila. Drying Mch. Co.
Proctor & Schwartz, Inc.
Saco Lowell Shops.
Sarent's Sons Corp., C. G.
Smith & Furbush Mch. Co.
Whitin Mch. Works.

Backwashers.
Sarent's Sons Corp., C. G.

Automatic Scales.
American Kron Scale Co.

Ball Bearings.
Aldrich Mch. Works.
Hyatt Roller Bearing Co.
New Departure Mfg. Co.
S K F Industries.
U. S. Ball Bearing Co.

Ball Bearing Spindles.
Allen Spindle Corp.

Ball Bearing Housings.
Aldrich Mch. Works.

Bale Band Buckles.
(See Box Strapping & Buckles.)

Bale and Box Ties.
Acme Steel Goods Co.
Lovingood Co.
Regnas & Co., J. R.
Signode System, Inc.

Baling Machines.
Crompton & Knowles Loom Wks.
Draper Corporation.
Economy Baler Co.
Galland-Henning Mfg. Co.
Hulme, J. S.
Saco-Lowell Shops.

Baling Presses.
(See Presses.)

Bandages, Tapes, Etc.
American Textile Banding Co.

Banding Straps and Buckles.
Acme Steel Goods Co.
Lovingood Co.
Regnas & Co., J. R.
Signode System, Inc.

Banks.
Atlanta National Bank.
Citizen & Southern Bank.
Irving National Bank.
National Bank of Commerce in New York.
National Shawmut Bank.
Textile Banking Co., Inc.

Bars (Corrugated for Concrete Reinforcement).
Corrugated Bar Co.

Barometers (Mercurial).
Taglabue Mfg. Co., C. J.
Taylor Instrument Co.

Barrels—Fibre.
(See Fibre Products.)

Baskets—Mill.
(See Boxes—Mill.)

Batteries (Elec.)
(See Storage Batteries).

Beam Dyeing Machines.
Cocker Mchry. & Foundry Co.

Beam Heads (Steel).
Mossberg Co., Frank

Beaming and Warping Mchry.
(See Warpers and Warping Machinery).

Bearings.
Chicago Pulley & Shafting Co.
Cresson-Morris Co.
Diamond State Fibre Co.
Hyatt Roller Bearing Co.
New Departure Mfg. Co
Standard Pressed Steel Co.
S K F Industries.
U. S. Ball Bearing Co.
Valley Iron Works.

Belting.
American Supply Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Jewell Belting Co.
Ladew & Co., Inc., Edw. R.
U. S. Rubber Co.
Walraven Co.
Williams & Co., I. B.

Belting—Chain Link.
Link-Belt Company.
Morse Chain Co.

Belting—Rope.
(See Rope Transmission.)

Belt Conveyors.
Link-Belt Company.
Morse Chain Co.
Portable Machinery Co.
Williams & Sons, I. B.

Belt Dressing.
Jos. Dixon Crucible Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Jewell Belting Co.
Ladew & Co., Inc., Edw. R.
Walraven Co.
Williams & Co., I. B.

Belt Fasteners.
Crescent Belt Fastener Co.
Flexible Steel Lacing Co.

Belt Hooks.
Crescent Belt Fastener Co.

Belt Lacing.
Crescent Belt Fastener Co.
Flexible Steel Lacing Co
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Jewell Belting Co.
Ladew & Co., Inc., Edw. R.
Stanley Belting Corp.
Walraven Co.
Williams & Sons, I. B.

Belt Rivets.
Crescent Belt Fastener Co.

Belt Tighteners.
Link-Belt Company.
Williams & Sons, I. B.

Benches (Park & Playground).
Hill-Standard Co.

Billiard Tables & Etc.
Brunswick-Balke-Collender Co.

Bleacheries.
(See Dyers, Bleachers and Finishers.)

Bleaching Kiers.
Butterworth & Sons Co., H. W.
Philadelphia Drying Mchry. Co.
Proctor & Schwartz, Inc.
Textile Finishing Machinery Co., The

Bleaching Machinery.
(See Dyeing, Bleaching & Finishing Machinery).

Bleaching, Finishing and Sizing Materials.
(See Finishing Materials.)

Blowers and Blower Systems.
American Blower Co.
Carrier Eng. Corp.
General Electric Co.
New York Blower Co
Perkins & Son, B. F.
Phila. Drying Machinery Co.
Sturtevant Co., B. F.
Westinghouse Elec. & Mfg. Co.

Boards—Fibre.
Diamond State Fibre Co.

Boards—Form.
Pearson, Jos. T.

Bobbins.
Draper Corporation.
Greenville Spool & Mfg. Co.
Jordan Mfg. Co.
Shambow Shuttle Co.
Whitin Machine Works.

Bobbin Heads.
Diamond State Fibre Co.

Boilers.
Crymes Mchry. & Supply Co.
International Engineering Wks., Inc.
Jones Mchry. Corp.
Lombard Iron Works & Supply Co.
Schofield's Co., J. S.
Toomey, Frank.
Walsh & Weidner Boiler Co.

Boiler Feed Water Purification.
Permutit Co.
Refinite Co.
Scaife & Sons, Wm. B.

Boiler Room Fittings & Supplies.
Crane Co.
International Engineering Co.
Jenkins Bros.
Lunkenheimer Co.

Boiler Graphite.
Jos. Dixon Crucible Co.

Box Strapping and Tie Buckles.
Acme Steel Goods Co.
Lovingood Co.
Regnas & Co., J. R.
Signode System, Inc.

Boxes—Mill.
Diamond State Fibre Co.
Hightower Box & Tank Co.
Keystone Fibre Co.
Lane & Bros., W. T.
Rogers Fibre Co.
Standard Fibre Co.

Boxes (Packing).
Hightower Box & Tank Co.
Walke Box Co., Inc.
Wall & Son, C. M.

Bowling Alleys, Etc.
Brunswick-Balke-Collender Co.

Braids.
(See Tapes.)

Brake Linings.
Diamond State Fibre Co.

Brazing.
(See Welding).

Brushes—Mill.
Felton Brush Co., D. D.
Felton, S. A. & Son Co.

Brushes—Commutator.
Dixon Crucible Co., Jos.
General Electric Co.
Westinghouse Elec. & Mfg. Co.

Buckets & Pails—Mill.
Keystone Fibre Co.
Rogers Fibre Co.
Standard Fibre Co.

Buckets—Elevator and Grab.
Link-Belt Company.

Buckles—Cotton Tie.
(See Box Strapping and Ties).

Building Contractors.
(See Contractors.)

Buildings—Portable.
Lockwood, Greene & Co.
Aladdin Co.
Tuxbury Lumber Co., A. C.

Building Material.
Aladdin Co.
American Cast Iron Pipe Co.
Anchor Post Iron Works.
Barrett Co., The
Corrugated Bar Co.
Detroit Steel Products Co.
Dufur & Co.
Hurst Co.
Kirkpatrick Lumber & Timber Co.
Lockwood, Greene & Co
Nashville Hardwood Flooring Co.
Peaslee-Gaulbert Co., Inc.
Portland Cement Asso.
Southern Cypress Mfg. Asso.
Tuxbury Lumber Co., A. C.

Bungalows (Quickly Built).
Aladdin Co.
Tuxbury Lumber Co., A. C.

Burr Pickers.
Sargent's Sons, C. G.
Smith & Furbush Machine Co.

Bushings.
Diamond State Fibre Co.
Southern Spindle & Flyer Co.

Calenders.
Butterworth & Sons Co., H. W.
Textile Finishing Mchy. Co.

Calender Rolls.
Butterworth & Sons Co., H. W.
Roy & Son, B. S.
Perkins & Son, Inc., B. F.

Calling System (Inter Telephone).
Carter Elec. Co.

Cans—Roving.
Diamond State Fibre Co.
Kevatone Fibre Co.
Rogers Fibre Co.
Standard Fibre Co.

Cars and Trucks—Fibre.
(See Trucks.)

Car Unloaders.
Portable Machinery Co

Carbonizing Machines.
Philadelphia Drying Mchry. Co.
Proctor & Schwartz, Inc.
Sargents Sons & Co., C. G.
Textile Finishing Machinery Co., The

Carding Machinery.
Howard & Bullough.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Card Clothing.
Howard & Bullough.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.
Whitin Machine Works.

TRY OUR HARD FIBRE
—BARRELS—

The Last Word in
Durability and Service

TAPER
BASKETS

—

OVAL
and
GILL
CANS

"Standard Fibre"
RECEPTACLES

HARD FIBRE TRUCKS
and
BOXES

NO-WASTE
SEAMLESS HARD FIBRE
ROVING CANS

PLAIN and STEEL CLAD
COMBINATION
DOFFING CARS

Are smooth and durable. No joints or seams—ONCE tried—ALWAYS used.

STANDARD FIBRE CO.

25 Miller St., Somerville, Mass.

The Duty of Credit

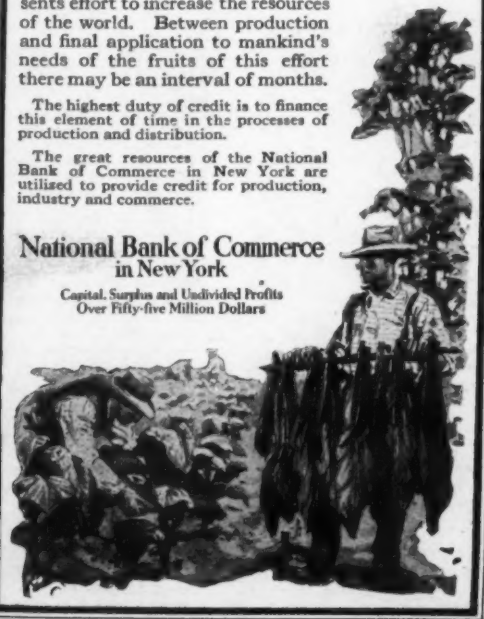
Every seed that is planted, every hour of labor that is expended on production of raw materials represents effort to increase the resources of the world. Between production and final application to mankind's needs of the fruits of this effort there may be an interval of months.

The highest duty of credit is to finance this element of time in the processes of production and distribution.

The great resources of the National Bank of Commerce in New York are utilized to provide credit for production, industry and commerce.

National Bank of Commerce
in New York

Capital, Surplus and Undivided Profits
Over Fifty-five Million Dollars



Factors

TEXTILE BANKING COMPANY
INCORPORATED
50 Union Square New York
Inaugurated by GUARANTY TRUST COMPANY OF NEW YORK
and LIBERTY NATIONAL BANK OF NEW YORK

BUYERS' INDEX—Continued.

Card Feeds.
Schofield, Wm. Co.
Smith & Furbush Mach. Co.
Whitin Machine Co.

Card Grinding Machinery.
Roy & Son Co., B. S.
Smith & Furbush Mch. Co.
Whitin Machine Works.

Carpet Machinery.
Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Wks.
Proctor & Schwartz, Inc.
Schofield, Wm. Co.
Smith & Furbush Mch. Co.
Textile Finishing Mchy. Co., The

Carrier Aprons.
(See Aprons.)

Cases (Wooden).
(See Boxes.)

Casement Window Hardware.
Richards-Wilcox Mfg. Co.

Castings.
American Cast Iron Pipe Co.
Cresson-Morris Co.
Lombard Foundry & Mch. Co.
McNaughton Mfg. Co.
Valley Iron Works.
Walsh & Weidner Boiler Co.

Cast Iron Columns.
American Cast Iron Pipe Co.

Caustic Soda.
(See Bleaching Materials.)

Cement Machinery.
Allis-Chalmers Mfg. Co.

Cement Reinforcement.
Corrugated Bar Co.

Cement and Brick Coating.
Cooledge & Sons, F. J.
Dixon Crucible Co., Jos.
Hurst Co.
Peaslee-Gaulbert Co., Inc.
Tropical Paint Co.
Wadsworth Howland & Co., Inc.

Centrifugals.
Cresson-Morris Co.

Chain Drives.
(See Belting—Chain Link.)

Chain (Block, Bicycle, Auto Engine, Agricultural, Etc.)
Morse Chain Co.

Chairs and Stools
Reischmann Co.
Wright Co.

Checks—Metal.
(See Stamps, Stencils, etc.)

Chemicals.
(See Dyestuffs and Chemicals.)

Chlorine Gas.
Electro Bleaching Gas Co.

Clocks (Hank, Etc)
(See Counters.)

Clocks (Time).
Eco Clock Co.

Clocks (Watchman).
Eco Clock Co.
Chicago Watchman Clock Wks.
Dixie Electric Equip. Co.

Closets (Water).
(See Toilets.)

Cloth Cutters.
Firsching, J. A.
Wildman Mfg. Co.

Cloth Room Machinery.
Butterworth, H. W. & Sons Co.
Firsching, J. A.
Saco-Lowell Shops.
Scott & Co., Henry L.
Textile Finishing Machinery Co.
Wildman Mfg. Co.

Cloth Shrinking Machinery.
Reliance Machine Works.

Cloth Testers.
Scott & Co., Henry L.

Cloth Winders.
(See Winders)

Clutches (Friction.)
Carlyle-Johnson Mch. Co.
Cresson-Morris Co.
Dodge Sales & Eng. Co.
Link-Belt Company.

Clutch Linings.
Diamond State Fibre Co.

Coal Driers (Centrifugal).
Link-Belt Company.

Coal Handling Machinery.
Link-Belt Company.
Portable Machinery Co.

Coal Tar Disinfectants.
(See Disinfectants.)

Cocks.
Lunkenheimer Co.

Color Pails.
(See Buckets—Mills.)

Color Testers.
Atlas Electric Devices Co.

Comb Aprons.
(See Aprons.)

Commission Merchants and Dealers.
(See Cotton Cloth Commission Merchants.)

Compressors, Air.
Allis-Chalmers Mfg. Co.
General Electric Co.
Jones Mchry. Corp.
Seeger Machine Tool Co.
Walraven Co., The

Concrete Reinforcement.
Corrugated Bar Co.

Condensers.
Allis-Chalmers Mfg. Co.
Seeger Machine Tool Co.

Conduits.
Diamond State Fibre Co.

Condulets.
Crouse-Hinds Co.

Connectors (Frankel Solderless)..
Westinghouse Elec. & Mfg. Co.

Consulting Engineers.
(See Architects & Engineer.)

Contractors and Engineers (Building).
Aberthaw Construction Co.
American City Eng'g Co.
Ferguson Co., Jno. W.
Goode, R. L.
Gude, A. Co.
Green & Co., Samuel M.
Robbins & Son, J. E.
Thompson & Binger.

Contractors (Electrical).
(See Electrical Engineers.)

Controlling Instruments (Temperature).
Powers Regulator Co.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Conveyors (Belt).
(See Belt Conveyors.)

Conveying Machinery.
American Supply Co.
Collins, J. D.
Cresson-Morris Co.
General Utilities Co.
Hulme, J. S.
Link-Belt Co.
Morse Chain Co.
Phila. Drying Machinery Co.
Proctor & Schwartz, Inc.
Portable Machinery Co.
Richards-Wilcox Mfg. Co.
Saco-Lowell Shops.
Seeger Machine Tool Co.
Schofield, Wm. Co.
Walraven Co.
Smith & Furbush Machine Co.
Valley Iron Works.
Whitin Machine Works.

Conveyors (Portable).
Portable Machinery Co.

Coolers.
(See Humidifying Apparatus.)

Coolers (Water).
(See Water Coolers.)

Cooling Towers.
(See Tanks and Towers.)

Copper Stamps and Stencils.
(See Stamps, Stencils, Etc.)

Cordage Machinery.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Textile Finishing Machinery Co. The.

Corrugated Bars.
Corrugated Bar Co.

Cotton Yarn and Cloth Commission Merchants and Dealers.
Carver-Beaver Yarn Co., Inc.
Fawcett, Hughes.
Florsheim, H .A.
Hunter Mfg. & Comm. Co.
Iselin & Co., Wm.
Lane, J. H. & Co.
Southern Cotton Yarn Co.
Weimar Bros.
Woodward Baldwin & Co.

Cotton Dealers and Brokers.
Beer, H. & B.
Cutts, E. A.
Dixie Cotton Waste Co.
International Cotton Prod. Co.

Cotton Mill Machinery and Supplies.
Allen Spindle Corp.
Barber-Colman Co.
Butterworth & Sons, H. W.
Cocker Mch. & Foundry Co.
Crymes Mchry. & Supply Co.
Crompton & Knowles Loom Wks.
Draper Corporation.
Firsching, J. A.
Fletcher Works.
Greenville Spool & Mfg. Co.
Howard & Bullough.
Jones Mchry. Corp.
Mason Machine Works.
Phila. Drying Mchy. Co.
Proctor & Schwartz, Inc.
Sargent's Sons, Corp., C. G.
Saco-Lowell Shops.
Schaum & Uhlinger.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Stafford Co.
Steel Heddle Mfg. Co.
Terrell Machine Co.
Textile Finishing Machinery Co.
Universal Winding Co.
Whitin Machine Works.
Whitinsville Spinning Ring Co.

Cotton Tape Loom.
Fletcher Works.
Schaum & Uhlinger.

Cotton Yarn Mills.
(See Yarn Manufacturers.)

Counters (Revolution, Hank, Pick, Etc).
Veeder Mfg. Co.
Percision Machine Co.

Couplings (Shaft).
Chicago Pulley & Shafting Co.
Cresson-Morris Co.

Covers (Roller).
Diamond State Fibre Co.

Cranes
(See Hoists.)

Crayons.
Dixon Crucible Co., Jos.
Lovingood Co.
Lowell Crayon Co.
Regnas & Co., J. R.

Creosote Oil and Creosoting.
Gulf States Creosoting Co.

Crushing Machinery.
Allis-Chalmers Mfg. Co.

Cutters (Cloth).
(See Cloth Cuters.)

Cypress Lumber.
Southern Cypress Mfg. Asso.
(See Thread Cutters.)

Dairy Supplies.
Dairy & Farm Supply Co.
Hackney Bros. Co.

Dehumidifying.
Sturtevant Co., B. F.

Delivery Cases.
(See Boxes—Packing.)

Dial Scales.
American Kron Scale Co.

Dies (Steel).
(See Stamps, Stencils, Etc.)

Discs (Fibre).
Diamond State Fibre Co.

Dishes and Glassware.
Chattanooga Queensware Co.

Disinfectants.
Barrett Co., The

Dobby Chains.
Crompton & Knowles Loom Wks.
Whitin Machine Works.

Doffing Boxes (Mill).
(See Boxes—Mill.)

Doffing Cars.
(See Cars.)

Door Closers and Checks.
Richards-Wilcox Mfg. Co.

Door Hangers.
Richards-Wilcox Mfg. Co.

Door Mats (Steel).
Acme Steel Goods Co.
Lovingood Co.
Regnas & Co., J. R.

Draft Gauges.
Taylor Instrument Co.

Drawing Frames.
Howard & Bullough.
Saco-Lowell Shops.
Whitin Machine Works.

Drills (Electric).
(See Electric Machinery.)

Drinking Fountains.
(See Fountains—Drinking.)

Drop Wires.
Steel Heddle Mfg. Co.

Drying Apparatus.
New York Blower Co.
Sturtevant Co., B. F.

Drying Forms (Hosiery).
Pearson, Jos. T.

Drying Machinery.
American Laundry Mchry. Co.
Butterworth, H. W. & Sons Co.
Proctor & Schwartz, Inc.
Sargent's Sons Corp., C. G.
Textile Finishing Machinery Co., The

Dust Collectors.
(See Blowers and Blowing Systems.)

Dusting Machinery.
Schofield Co., Wm.
Smith & Furbush Mach. Co.

Dyers, Bleachers and Finishers.
American Processing Co.

Dyeing, Bleaching, Finishing and Printing Machinery.
American Laundry Mchry. Co.
Atlas Electric Devices Co.
Butterworth & Sons Co., H. W.
Cocker Mch. & Foundry Co.
Electro Bleaching Gas Co.
Firsching, J. A.
Fletcher Works.
Hulme, J. S.
Permutit Co.
Phila. Drying Machinery Co.
Proctor & Schwartz, Inc.
Refinite Co.
Reliance Machine Works.
Rome Mch. & Fdry. Co.
Schaum & Uhlinger.
Textile Finishing Machinery Co., The
Tolhurst Machine Works.

Dye Sticks.
Phila. Drying Machinery Co.

Dyestuffs and Chemicals.
Althouse Chemical Co.
Aniline Dyes & Chemicals, Inc.
Arabol Mfg. Co.
Arnold, Hoffman & Co.
Atlantic Dyestuff Co.
Barrett Co.
Borne, Scrymser Co.
Bosson & Lane.
Dow Chemical Co.
Du Pont de Nemours & Co., E. I.
Electro Bleaching Gas Co.
Grasselli Chemical Co.
Hemingway Inc., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Lewis, John D.
Metz & Co., H. A.
Moore Oil Refining Co.
National Aniline & Chemical Co.
National Oil Products Co.
Newport Chemical Works, Inc.
Roessler & Hasslacher Chemical Co.
Surtass Chemical Co.
United Chemical Products Corp.
Wolf & Co., Jacques

Ejectors.
Sherwood Mfg. Co.

Electric Dynamos and Motors.
(See Motors and Generators.)

Electric Fans.
(See Fans—Electric.)

Electric Lamps.
(See Lamps.)

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Flexible Steel Lacing Co.

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Dixie Electrical Equipment Co.
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Jones Mchry. Corp.
Multiple Electric Products Co.
Phila. Electric Co.
Seeger Machine Tool Co.
Walraven Co., The
Walsh & Weidner Boiler Co.
Westinghouse Electric & Mfg. Co.

Electrical Repairing (all kinds).
Bryan Electric Co.
Dixie Electrical Equipment Co.

Electric Tractors and Trucks.
(See Tractors & Trucks—Elec.)

Elevators.
Collins, J. D.
Link-Belt Company.
Seeger Machine Tool Co.

Enamel—Mill White.
(See Paint—Mill White.)

Engineers (Mill).
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Engines—Oil, Gas and Gasoline.
Crymes Mchry. & Supply Co.
Seeger Machine Tool Co.

Engines—Steam.
Allis-Chalmers Mfg. Co.
Crymes Mchry. & Supply Co.
Jones Mchry. Corp.
Lombard Iron Works & Supply Co.
Schofield's Sons Co., J. S.
Toomey, Frank
Walsh & Weidner Boiler Co.

Engine Room Appliances and Supplies.
Crane Co.
Crymes Mchry. & Supply Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Jenkins Bros.
Jones Mchry. Corp.
Lunkenheimer Co.
Sherwood Mfg. Co.
Walraven Co.

Exporters (Cotton).
(See Brokers.)

Extractors—Hydro.
American Laundry Mchry. Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.

Fans—Electric.
Allis-Chalmers Mfg. Co.
American Blower Co.
Benjamin Electric Co.
Bryan Electric Co.
Carter Electric Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Fans—Conveying, Power and Exhaust.
(See Blowers and Blowing Systems.)

Fasteners (Belt).
(See Belt Fasteners.)

Feed Water Purifiers.
Permutit Co.
Refinite Co.
Scaife & Sons, Wm. B.

Felting Machinery.
Smith & Furbush Mch. Co.

Fence—Steel and Iron.
American Cast Iron Pipe Co.
Anchor Post Iron Works.
Cyclone Fence Co.

Fibre Products.
Diamond State Fibre Co.
Keystone Fibre Co.
Rogers Fibre Co.
Standard Fibre Co.

Filters—Water.
Refinite Co.
Scaife & Sons Co., Wm. B.

Filters (Oil Removal).
Permutit Co.
Sherwood Mfg. Co.

Filters (Sand).
Permutit Co.

Finishing.
(See Dyers, Bleachers and Finishers.)

Finishing, Bleaching and Sizing Materials.
Althouse Chemical Co.
Atlantic Dyestuff Co.
Aniline Dyes & Chemical, Inc.
Arabol Mfg. Co.
Arnold, Hoffman & Co.
Barrett Co.
Berne, Schrymser Co.
Bossen & Lane.
Corn Products Refining Co.
Dobbins Soap Mfg. Co.
Dow Chemical Co.
Du Pont de Nemours & Co., E. I.
Electric Smelting & Alum. Co.
Electro Bleaching Gas Co.
Grasselli Chemical Co.
Kali Mfg. Co.
Keever Starch Co.
Klipstein & Co., A.
National Oil Products Co.
Newport Chemical Works.
Metz & Co., H. A.
Moore Oil Refining Co.
National Aniline & Chemical Co.
Roessler & Hasslacher Co.
Co.
United Chemical Products Corp.
Warren Soap Mfg. Co.
Wolf & Co., Jacques
World Mfg. Co.

Fire Alarm Apparatus.
Dixie Electric Equip. Co.

Fire Doors.
Richards-Wilcox Mfg. Co.

Fire Door Hardware (Automatic).
Richards-Wilcox Mfg. Co.

Fire Escapes (Spiral).
Collins, J. D.

Fire Hose.
(See Hose—Fire.)

Fire Protecting Paint.
(See Paint—Fireproof).

First Aid Room Equipment.
(See Hospital Equipment.)

Flexible Couplings.
Cresson-Morris Co.

Flood Lights (Elec.)
Crouse-Hinds Co.

Flooring (Hardwood).
Kirkpatrick Lum. & Timber Co.
Nashville Hardwood Flooring Co.
Southern Cypress Mfg. Co.

Floor Scrubbing Machine.
American Scrubbing Machine Co.

Fluted Rolls.
Howard & Bullough.
Perkins & Son, B. F.
Saco-Lowell Shops.
Schofield's Sons Co., J. S.
Smith & Furbush Machine Co.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Flyers.
Howard & Bullough.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Founders.
Cresson-Morris Co.

Fountains (Drinking).
Central Brass Mfg. Co.
Crane Co.
Jewett Refrigerator Co.
Mott-Southern Co.
Rundle-Spence Mfg. Co.
Southern States Supply Co.
Taylor Co., Halsey W.

Friction Clutches.
(See Clutches—Friction.)

Fuses.
(See Elec. Mchy. and Supplies.)

Garage Door Hardware.
Richards-Wilcox Mfg. Co.

Garnett Machines.
Roy Son Co., B. S.
Smith & Furbush Mach. Co.

Gas Engines.
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Gasoline Tanks and Pumps.
Wayne Oil Tank & Pump Co.

Gaskets.
Diamond State Fibre Co.
Graton & Knight Mfg. Co.

Gauge Cocks.
Lunkenheimer Co.

Gauges—Draft.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Gauges—Mercury Column Vacuum.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Gauges—Oil.
Lunkenheimer Co.

Gauges (Pressure).
Tagliabue Mfg. Co., C. J.

Gauges (Recording).
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co

Gauges—Water.
Lunkenheimer Co.

Gears—Silent.
Diamond State Fibre Co.
General Electric Co.
Link-Belt Company.
Morse Chain Co.

Gear Cutting and Cutters.
Cresson-Morris Co.
Southern Welding & Machine Co.
Reischmann Co.
Whitin Mch. Co., D. E.

Gear Pullers.
Greb Co., Inc.

Generators—Electric.
(See Motors and Generators.)

Glassware and Dishes.
Chattanooga Queensware Co.

Governors (Pressure).
Tagliabue Mfg. Co., C. J.

Governors (Pump).
Tagliabue Mfg. Co., C. J.

Graphite—Products.
Dixon Crucible Co., Jos.

Grates (Boiler).
International Eng. Works.
Lombard Fdy. & Mch. Co.
McNaughton Mfg. Co.

Grease.
(See Lubricants.)

Grease Cups.
(See Lubricators.)

Green Houses.
Hulme, J. S.

Grindstones.
Richards-Wilcox Mfg. Co.

Grinders—Card, Cylinder Roll, Napper and Garnett.
(See Card Grinding Machinery.)

Guards (Elec. Lamp.)
Flexible Steel Lacing Co.

Guides (Thread).
Mitchell-Bissell Co.
Palmer Co., I. E.

Gums.
(See Finishing and Sizing Materials.)

Hangers.
(See Shafting and Hangers.)

Harness—Loom.
American Supply Co.
Crompton & Knowles Loom Wks.
Emmons Loom Harness Co.
Garland Mfg. Co.

Heads (Bobbin & Spool).
Diamond State Fibre Co.

Heating and Ventilating Apparatus.
(See Ventilating Apparatus.)

Heddles.
Crompton & Knowles Loom Wks.
Draper Corporation.
Steel Heddle Mfg. Co.

Heddle Frames.
Crompton & Knowles Loom Wks.
Steel Heddle Mfg. Co.

Hinges & Butts.
McKinney Mfg. Co.

Hoists.
General Utilities Co.
Hulme, J. S.
Link-Belt Company.
Morse Chain Co.
Pasco Tool Co.
Seeger Machine Tool Co.
Walraven Co.

Hose—Fire.
Collins, J. D.
Goodyear Tire & Rubber Co.
U. S. Rubber Co.

Hosiery Dyeing Machinery.
Cocker Mch. & Fdry. Co
Rome Mach. & Fdry. Co.

Hosiery Finishing Boards.
(See Boards.)

Hosiery Forms.
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Hosiery Yarns.
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Hospital Equipment.
Thomas Co., F. H.
Wright Co.

Hotels.
Sinton.

Houses (Ready-Made).
(See Bungalows.)

Humidifying Apparatus.
American Blower Co.
Carrier Eng. Corp.
New York Blower Co.
Parks-Cramer Co.
Sturtevant Co., B. F.

Humidity Indicating Instruments.
Powers Regulator Co.
Tagliabue Mfg. Co., C. J.
Taylor Inst. Co.

Hydraulic Turbines.
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Hydro Extractors.
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Hydrometers.
Taylor Instrument Co.

Hygrometers.
Taylor Instrument Co.

Hygrodeiks.
Taylor Instrument Co.

Indicating and Recording Instruments and Thermometers.
Powers Regulator Co.
Taylor Instrument Co.
Tagliabue Mfg. Co., C. J.

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Injectors.
Lunkenheimer Co.
Sherwood Mfg. Co.

Insulation (Vulcanized Fibre).
Diamond State Fibre Co. Sai

Insurance.
Miller Indemnity Underwriters.

Ink—Stencil and Marking.
Atlanta Stamp & Stencil Wks.
Bradley Mfg. Co., A. J.
Lovingood Co.
National Marking Machine Co.
Regnas & Co., J. R.

Iron Work—Ornamental.
American Cast Iron Pipe Co.
Anchor Post Iron Works.
Cyclone Fence Co.
Dufur & Co.
Lombard Iron Works & Supply Co.

Jacks.
Paulus, Chas. B.

Jacquards.
Crompton & Knowles Loom Wks.

Jute Bagging Machines.
Smith & Furbush Mach. Co.

Kettles—Size.
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Kettles—Soda.
Lombard Iron Works & Sup. Co.

Kiers.
(See Bleaching Kiers.)

Knit Goods.
(See Cotton Cloth Commission Merchants and Dealers.)

Knit Goods Washers.
(See Washers—Cloth.)

Knitting Machinery and Supplies.
Adams Co., Geo. H.
Brinton Co., H.
General Machine Works.
Hemphill Mfg. Co.
Scott & Williams.
Wildman Mfg. Co.

Laboratory Instruments & Thermometers.
Tagliabue Mfg. Co., C. J.

Lacing (Belt).
(See Belt Lacing.)

Lamps—Incandescent and Arc.
Benjamin Electric Co.
Boston Economy Lamp Div.
Bryan Electric Co.
Carter Electric Co.
Crouse-Hinds Co.
Jones Mchry. Corp.
General Electric Co.
Walraven Co.
Westinghouse Lamp Co.

Lamp Guards (Key Locking).
Flexible Steel Lacing Co.

Lamp Reflectors.
Benjamin Electric Co.
Bryan Electric Co.
Carter Elec. Co.
Crouse-Hinds Co.
Ivanhoe-Regent Works.

Landscape Architects.
(See Village Architects.)

Lappers.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Whitin Machine Works.

Latch Needles.
Paulus, Chas. B.

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American Laundry Mchry. Co.
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American Supply Co.
Graton & Knight Mfg. Co.
Jewell Belting Co.
Ladew & Co., Inc., Edw. R.
Williams & Sons, I. B.

Lights (Flood).
Crouse-Hinds Co.

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Link Belting.
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Linters.
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Liquid Chlorine.
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Loaders—Wagon and Trucks.
Link-Belt Company.
Portable Machinery Co.

Locks and Latches.
Richards-Wilcox Mfg. Co.

Lockers (Metal).
Collins, J. D.
Medart Mfg. Co., Fred.

Logwood Extract.
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Schaum & Uhlinger.
Schofield, Wm. & Co.
Stafford Co., The

Loom Attachments (Automatic).
Draper Corporation.

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Lubricants.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.
Swan & Finch Co.
Texas Co.

Lubricant, Tanks and Pump.
Wayne Oil Tank & Pump Co.

Lubricators.
Lunkenheimer Co.
N. Y. & N. J. Lubricant Co.
Sherwood Mfg. Co.

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Kirkpatrick Lum. & Timber Co.
Southern Cypress Mfg. Asso.

Lunch Room Equipment.
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Machine Tools.
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Machinists.
Cresson-Morris Co.

Marking (Dry Transfer).
Kaumagraph Co.

Marking Pots, Stencils, Inks, Etc.
Atlanta Stamp & Stencil Wks.
Bradley Mfg. Co., A. J.
Lovingood Co.
National Marking Machine Co.
Regnas & Co., J. R.

Marking Machines.
National Marking Machine Co.

Mercerized Yarns.
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Mercerizing Machinery.
Butterworth, H. W. & Sons Co.
Textile Finishing Machinery Co.

Metal Ceilings, Etc.
Lupton's Sons Co., David

Metals (Perforated).
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Metal Workers—Sheet.
Lombard Iron Works & Supply Co.

Meters—Flow, Air, Gas, Electric, Steam, Etc.
Allis-Chalmers Mfg. Co.
Benjamin Electric Co.
Bryan Electric Co.
Carter Electric Co.
General Electric Co.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.
Westinghouse Elec. & Mfg. Co.

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Taylor Instrument Co.

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Mill Villages.
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Monorail Conveying Systems.
Richards-Wilcox Mfg. Co.

Motors and Generators—Electric.
Allis-Chalmers Mfg. Co.
Bryan Electric Co.
Carter Electric Co.
Crymes Mchry. & Supply Co.
Dixie Electrical Equipment Co.
General Electric Co.
Hulme, J. S.
Jones Mchry. Corp.
Seeger Machine Tool Co.
Walraven Co., The
Westinghouse Elec. & Mfg. Co.

Moving Picture Mach. & Supplies.
Southern Theatre Equip. Co.

Mule Stands.
Transmission Ball Bearing Co.

Nails—Cement Coated.
Lovingood Co.
Regnas Co., J. R.

Nappers.
Roy & Son Co., B. S.

Needles—Latch.
Paulus, Chas. B.

Oils.
Hampden Paint & Chem. Co.
Wadsworth, Howland & Co., Inc.

Oils—Finishing
(See Finishing and Sizing Materials.)

Oils—Lubricating.
(See Lubricants.)

Oil Cups.
(See Lubricators.)

Oil Paper.
Bradley Mfg. Co., A. J.

Oil Tanks & Pumps.
Wayne Oil Tank & Pump Co.

Oil Testing Instruments.
Tagliabue Mfg. Co., C. J.

Oiling Devices.
(See Lubricators.)

Openers for Cotton, Wool, Waste Etc.
Saco-Lowell Shops.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Whitin Machine Works.

Oxidizing Machinery.
Phila. Drying Machinery Co.

Oxygen.
Commercial Acetylene Supply Co.
Linde Air Products Co.
Oxweld Acetylene Co.
Prest-O-Lite Co.
Standard Gas Products Co.
Waterhouse Welding Co.

Package Tying Machine.
Bunn & Co., B. H.

Packing Boxes & Cases (Wooden).
Hightower Box & Tank Co.
Walke Box Co., Inc.
Wall & Son, C. M.

Packings.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Jenkins Bros.
Walraven Co.
U. S. Rubber Co.

Paint.
Atlanta Gas Light Co.
Barrett Co., The
Cooledge & Sons, F. J.
Du Pont de Nemours & Co., E. I.
Gulf States Creosoting Co.
Hampden Paint & Chem. Co.
Hurst Co.
Johnson Paint Co.
Peaslee-Gaulbert Co., Inc.
Tropical Paint Co.
Wadsworth, Howland & Co., Inc.

Paper.
Bradley Mfg. Co., A. J.
Diamond State Fibre Co.

Perforated Metal.
(See Screens and Sieves.)

Peroxides.
Roessler & Hasslacher Chemical Co.

Pianos & Players.
Scofield Auto Music Co.

Pickers—Curled Hair.
Schofield, Wm. Co.
Smith & Furbush Mach. Co.

Pickers—Leather.
Garland Mfg. Co.

Picker Sticks.
Garland Mfg. Co

Picking Machinery.
Howard & Bullough, Am. Machine Co.
Saco-Lowell Shops.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Whitin Machine Works.

Pinions.
Diamond State Fibre Co.

Pipe and Pipe Fittings.
Crane Co.
Lunkenheimer Co.
Parks-Cramer Co.
Scaife & Sons Co., Wm. B.
Walraven Co.

Pipe Organs.
Scofield Auto Music Co.

Pipe Threading & Cutting Machines.
Seeger Machine Tool Co.
Walraven Co., The

Playground Equipment.
Hill-Standard Co.
Medart Mfg Co., Fred.

Pool Tables, Etc.
Brunswick-Balke-Collender Co.

Power Transmission.
Aldrich Mch. Wks.
Allis-Chalmers Mfg. Co.
Carlyle-Johnson Mch. Co.
Cresson-Morris Co.
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Crymes Mchry. & Supply Co.
Dodge Sales & Eng. Co.
General Electric Co.
General Utilities Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Hyatt Roller Bearing Co.
Jewell Belting Co.
Jones Mchry. Corp.
Ladew & Co., Inc., Edw. R.
Link-Belt Company.
Morse Chain Co.
New Departure Mfg. Co.
S K F Industries.
Seeger Machine Tool Co.
Standard Pressed Steel Co.
Stanley Belting Corp.
U. S. Ball Bearing Co.
U. S. Rubber Co.
Valley Iron Works.
Walraven Co., The
Westinghouse Elec. & Mfg. Co.
Williams & Sons, I. B.

Presses.
American Laundry Machnry. Co.
Butterworth & Sons Co., H. W.
Economy Baler Co.
Galland-Henning Mfg. Co.
Lovingood Co.
Phila. Drying Mch. Co.
Proctor & Schwartz, Inc.
Reliance Machine Works.
Seeger Machine Tool Co.
Smith & Furbush Mch. Co.
Textile Finishing Machinery Co., The

Pulleys.
Chicago Pulley & Shafting Co.
Cresson-Morris Co.
Diamond State Fibre Co.
Dodge Sales & Eng. Co.
Link-Belt Company.
Seeger Machine Tool Co.
Valley Iron Works.
Walraven Co., The

Pulley Covering.
Goodyear Tire & Rubber Co.
Stanley Belting Corp.
Williams & Sons, I. B.

Pumps.
Allis-Chalmers Mfg. Co.
Jones Mchry. Corp.
Seeger Machine Tool Co.
Textile Finishing Machinery Co.
Toomey, Frank
Walraven Co.
Walsh & Weidner Boiler Co., The
Westinghouse Elec. & Mfg. Co.

Pump Oil).
Wayne Oil Tank &Pump Co.

Pump Valves.
(See Valve Discs.)

Psychrometers (Sling).
Taylor Instrument Co.

Pyrometers.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Quill Cleaning Machines.
Terrell Mch. Co.
Dufur & Co.

Receptacles (Fibre).
(See Fibre Products.)

Recording Instruments.
Powers Regulator Co.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Recorders (Draft).
Tagliabue Mfg. Co., C. J.

Recorders (Pressure).
Tagliabue Mfg. Co., C. J.

Recorders (Temperature).
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Reeds.
American Supply Co.
Emmons Loom Harness Co.

Reed Polishing Machines.
Shawmut Eng'g Co.

Reels.
Cocker Mch. & Fdry. Co.
Crompton & Kowles Loom Wks.
Draper Corporation.
Saco-Lowell Shops.
Schofield, Wm. Co.
Whitin Machine Works.

Reflectors (Lamp).
(See Lamp Reflectors.)

Regulators (Condensate).
Tagliabue Mfg. Co., C. J.

Regulators (Liquid Level).
Tagliabue Mfg. Co., C. J.

Refrigerating Machines.
Southern States Supply Co.

Regulators—Pressure.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Regulators—Temperature.
(See Temperature Controllers.)

Regulators (Time).
Tagliabue Mfg. Co., C. J.

Reinforcement Bars for Concrete.
Corrugated Bar Co.

Repairing (Electrical).
Jones Mchry. Corp.

Repairing (Textile Mchry, etc).
Atlanta Welding Co.
Chattanooga Brazing & Welding Co.
General Machine Works.
Southern Spindle & Flyer Co.
Standard Gas Products Co.

Restaurant Equipment.
Chattanooga Queensware Co.
Reischmann Co.
Pick & Co., Albert
Wright Co.

Rib Top Cutters.
General Machine Works.
Wildman Mfg. Co.

Ring Travelers—Steel and Bronze.
Whitinsville Spining Ring Co.
Whitin Machine Works.

Rings—Spinning.
(See Spinning Rings.)

Rivets (Belt).
Crescent Belt Fastener Co.

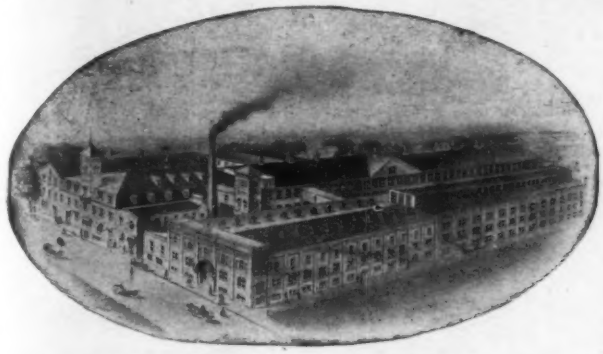
Rocker Shaft Bearings.
(See Bearings.)

Rolls (Calender.)
Butterworth & Sons Co., H. W.
Perkins & Son, B. F.
Roy & Son Co., B. S.

Rolls (Rubber Covered).
American Wringer Co.
Butterworth & Sons Co., H. W.
Perkins & Son, B. F.

Rolls—Steel.
Butterworth & Sons Co., H. W.
Perkins & Son, B. F.
Southern Spindle & Flyer Co.

Roofing.
Asphalt Roofing Co.
Atlanta Gas Light Co.
Barrett Co., The
Cooledge & Sons, F. J.
High-Grade Mfg. Co.



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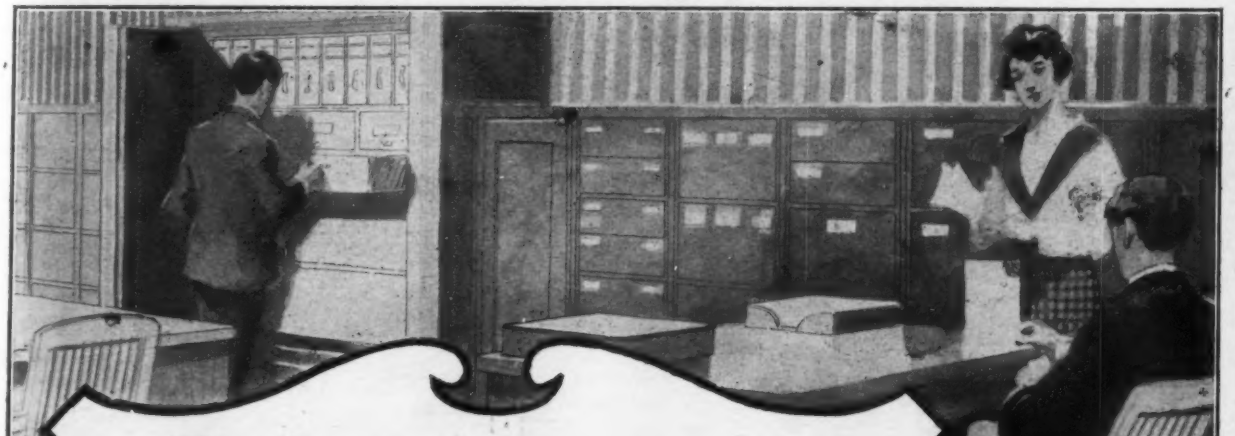

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Wadsworth, Howland & Co.
Walraven Co.

Roofing Felt and Pitch.
Atlanta Gas Light Co.

Roof and Cement Coating.
Asphalt Roofing Co.
Atlanta Gas Light Co.
Barrett Co.
Cooledge & Sons, F. S.
Du Pont de Nemours & Co., E. I.
Hampden Paint & Chemical Co.
High-Grade Mfg. Co.
Hurst Co.
Johnson Paint Co.
Pesalee-Gaulbert Co., Inc.
Tropical Paint Co.
Wadsworth, Howland & Co.

Rope—Transmission.
Cresson-Morris Co.
Dodge Sales & Eng. Co.
Link-Belt Company.
Walraven Co.

Roving Cans and Trucks.
(See Cans—Roving.)

Roving Machinery.
Howard & Bullough.
Saco-Lowell Shops.
Whitin Machine Works.

Rubber Stamps.
(See Stamps, Stencils, Etc.)

Rubber Goods.
Goodyear Tire & Rubber Co.
U. S. Rubber Co.

Sanitary Products.
Chattanooga Queensware Co.
Crane Co.
Dail Steel Products Co.
Hackney Bros. Co.
Kaustine Co.
Rundle-Spence Mfg. Co.
Vogel Co., Jos. A.

Sash-Window—Steel.
Detroit Steel Products Co.
Lupton's Sons Co., David

Scales.
American Kron Scale Co.
Lovingood Co.
Torsion Balance Co.

Scale Preventer (Boiler).
(See Boiler Feed Water Purification.)

Schools.
Phila. Textile School.

Screens & Sieves—Perforated.
Erdle Perforating Co.
Link-Belt Company.

Scrubbing Machine—Floor.
American Scrubbing Mch. Co.

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Atlanta Textile Mchry. Co.
Crymes Mchry. & Supply Co.
Jones Mchry. Corp.
Toomey, Frank, Inc.
Walraven Co.

Sewing Machines.
Merrow Machine Co., The
Textile Finishing Mchy. Co.
Wilcox & Gibbs Sewing Mach. Co.

Shades (Electric Lamp).
(See Reflectors).

Shafting & Hangers.
Chicago Pulley & Shafting Co.
Cresson-Morris Co.
Dodge Sales & Eng. Co.
Link-Belt Co.
Seeger Machine Tool Co.
S K F Industries.
Standard Pressed Steel Co.
Valley Iron Works.
Walraven Co., The

Shears.
Roy & Son Co., B. S.

Shelving—Sectional Steel.
Collins, J. D.
Hyatt Roller Bearing Co.
Lupton's Sons Co., David
Medart Mfg. Co., Fred.

Shingles—Asphalt.
Barrett Co.

Shingles—Metal.
Cortright Metal Roofing Co.

Shingle (Wood).
Kirkpatrick Lum. & Timber Co.
Southern Cypress Mfg. Asso.

Shipping Room Machinery and Supplies.
Acme Steel Goods Co.
American Kron Scale Co.
Atlanta Stamp & Stencil Works.
Baker, R. & L. Co.
Bradley Mfg. Co., A. J.
Bunn & Co., B. H.
Collins, J. D.
Diamond State Fibre Co.
Elwell-Parker Elec. Co.
Handy Equip. Corp.
Hightower Box & Tank Co.
Hulme, J. S.
Keystone Fibre Co.
Lane & Bro., W. T.
Lovingood Co.
McKinney Mfg. Co.
Regnas & Co., J. R.
Rogers Fibre Co.
Standard Fibre Co.
Seeger Machine Tool Co.
Signode System, Inc.
Torsion Balance Co.
Walraven Co., The
Walke Box Co., Inc.
Wall & Son, C. M.

Shower Baths.
Crane Co.

Shuttles.
Crompton & Knowles Loom Wks.
Draper Corporation.
Shambow Shuttle Co.

Sinkers.
Paulus, Chas. B.

Singeing Machinery.
Butterworth & Sons Co., H. W.
Phila. Drying Machine Co.
Textile Finishing Machinery Co., The

Size Box Temperature Controller.
Powers Regulator Co.
Taylor Instrument Co.
Tagliabue Mfg. Co., C. J.

Size Kettles.
Butterworth, H. W. & Sons Co.
Howard & Bullough, American Machine Co.
Lombard Iron Works & Sup. Co.
Saco-Lowell Shops.
Textile Finishing Machinery Co., The

Sizing and Finishing Compounds.
(See Finishing & Sizing Materials.)

Skewers.
Greenville Spool & Mfg. Co.
Jordan Mfg. Co.

Skylights—Steel.
Detroit Steel Products Co.
Lupton's Sons, Co., David

Slashers and Slasher Room Supplies.
Butterworth & Sons Co., H. W.
Cocker Mch. & Foundry Co.
Howard & Bullough.
Lovingood Co.
Mossberg Co., Frank
Regnas & Co., J. R.
Saco-Lowell Shops.
Textile Finishing Machinery Co., The

Slasher Tape.
(See Tape—Slasher.)

Slate Asphalt Roofing.
Barrett Co.

Sliding Partition Hardware.
Richards-Wilcox Mfg. Co.

Slubbers.
Howard & Bullough.
Saco-Lowell Shops.
Whitin Machine Works.

Soap—Textile.
Althouse Chemical Co.
Aniline Dyes & Chemicals, Inc.
Arnold, Hoffman & Co.
Borne, Scrymser Co.
Dobbins Soap Mfg. Co.
Dow Chemical Co.
Du Pont de Nemours & Co., E. I.
Electric Smelting & Alum. Co.
Grasselli Chemical Co.
Kali Mfg. Co.
Hemingway & Co., Frank
Klipstein & Co., A.
Newport Chemical Works.
Pick & Co., Albert
United Chemical Products Corp.
Warren Soap & Mfg. Co.
Wolf & Co., Jacques
World Mfg. Co.

Soda Ash.
Klipstein & Co., A.

Softeners—Cotton.
Althouse Chemical Co.
Aniline Dyes & Chemicals, Inc.
Arabol Mfg. Co.
Arnold, Hoffman & Co.
Atlantic Dyestuff Co.
Borne, Schrymser Co.
Bosson & Lane.
Dow Chemical Co.
Durex Chemical Co.
Du Pont de Nemours & Co., E. I.
Grasselli Chemical Co.
Hemingway & Co., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Moore Oil Refining Co.
Newport Chemical Works.
National Oil Products Co.
Pick & Co., Albert
Roessler & Hasslacher Chemical Co.
United Chemical Products Corp.
Wolf & Co., Jacques
World Mfg. Co.

Softeners—Water.
(See Water Softeners.)

Solderless Connectors (Frankel.)
Westinghouse Elec. & Mfg. Co.

Solvents.
(See Finishing.)

Sorting Table Tops.
Pick & Co., Albert

Spindles.
Allen Spindle Corp.
Draper Corporation.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Spindles—Ball Bearing.
Allen Spindle Corp.

Spinners.
Arlington Cotton Mills.
Arrow Mills, Inc.
Flint Mfg. Co.
Gray Mfg. Co.
Hunter Mg. & Comm. Co.
King Cotton Mills Corp.
Myrtle Mills, Inc.
Parkdale Mills, Inc.

Spinning Frames.
American Machine Co., H. & B.
Crompton & Knowles Loom Wks.
Fletcher Works.
Florsheim, H. A.
Howard & Bullough.
Schaum & Uhlinger.
Saco-Lowell Shops.
Whitin Machine Works.

Spinning Rings.
Allen Spindle Corp.
Draper Corporation.
Howard & Bullough.
Greenville Spool & Mfg. Co.
Southern Novelty Co.
Whitin Machine Wks.
Whitinsville Spinning Ring Co

Spinning Tape Specialists.
American Textile Banding Co. Inc.
Barber Mfg. Co.

Spooling Machinery.
Draper Corporation.
Greenville Spool & Mfg. Co.
Saco-Lowell Shops.
Smith & Furbush Machine Co.
Whitin Machine Works.

Spools & Skewers.
Greenville Spool & Mfg. Co.

Sprinkler Tanks.
(See Tanks, Towers, Etc.)

Sprockets.
Link-Belt Company.
Morse Chain Co
Valley Iron Works.

Stamping (Dye Transfer System).
Kaumagraph Co.

Stamps, Stencils and Stencil Machines.
Atlanta Stamp & Stencil Works.
Bradley Mfg. Co., A. J.
Lovingood Co.
Regnas & Co., J. R.
Southern Stamp & Stencil Co.

Stand Pipes.
(See Tanks, Towers, Etc.)

Starch & Gums.
(See Finishing and Sizing Materials.)

Steam Engines.
(See Engines—Steam.)

Steam Hose.
(See Hose—Steam.)

Steam Pumps.
(See Pumps—Steam.)

Steam Traps.
(See Traps—Steam.)

Steel Doors, Window, Partition, Etc.
Detroit Steel Products Co.
Lupton's Sons Co., David

Steel Lockers.
(See Lockers.)

Stencils & Stencil Papers.
(See Stamps and Stencils.)

Stencil Brushes.
(See Marking Pots and Brushes.)

Stencil Cutting Machines.
Atlanta Stamp & Stencil Works.
Bradley Mfg. Co., A. J.
Lovingood Co.
Regnas & Co., J. R.
Southern Stamp &Stencil Wks

Stop Motion.
Crompton & Knowles Loom Wks.
Draper Corporation.
Wildman Mfg. Co.

Storage Batteries.
Edison Storage Battery Co.

Storage Racks
(See Shelving)

Storage Tanks for Oil and Gasoline
Wayne Oil Tank & Pump Co.

Strapping.
(See Leather Specialties or Box Strapping.)

Supplies (General Mill).
Crymes Mchry. & Supply Co.
Hulme, J. S.
Jones Mchry. Corp.
Mill Supply Co. of Greenville.
Regnas & Co., J. R.
Seeger Machine Tool Co.
Steel Heddle Mfg. Co.
Walraven Co., The

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Crouse-Hinds Co.

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Crouse-Hinds Co.

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Pick & Co., Albert
Reischmann Co.
Wright Co.

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Tagliabue Mfg. Co.
Veeder Mfg. Co.

Tag Addressing Machines.
Regnas & Co., J. R.

Tallow.
(See Finishing Materials.)

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Fletcher Works.
Schaum & Uhlinger.

Tape—Slasher.
Lovingood Co.
Regnas & Co., J. R.

Tape Making Machines.
(See Bandage and Tape Mach.)

Telephones (Calling System.)
Carter Elec. Co.
Dixie Elec. Equip. Co.

Temperature Controllers.
Carrier Eng. Corp.
Parks-Cramer Co.
Powers Regulator Co.
Sturtevant Co., B. F.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Temples.
Draper Corporation.

Tearing Machines.
Collins, J. D.
General Utilities Co.
Lovingood Co.
Regnas & Co., J. R.

Tenters.
Butterworth & Sons Co., H.
Textile Finishing Mach. Co.

Textile Machinery.
(See Cotton Mill Machinery.)

Textile Schools.
(See Schools.)

Theatre Equipment.
Lucas Theatre Supply Co.
Rothacker Film Mfg. Co.
Southern Theatre Equip. Co.

Thermometers—All Kinds.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Thin Place Preventers.
Draper Corporation.

Thread Guides.
Mitchell-Bissell Co.
Palmer Co., The I. E.

Ties (Baling).
(See Bale Ties.)

Time Clocks.
International Time Recorder Co.

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Goodyear Tire & Rubber Co.
U. S. Rubber Co.

Toilets.
Crane Co.
Dail Steel Products Co.
Kaustine Co.
Rundle-Spence Mfg. Co.
Vogel Co., Jos. A.

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Crymes Mchry. & Supply Co.
Jones Mchry. Corp.
Pasce Tool Co.
Seeger Machine Tool Co.
Walraven Co., The

Towers.
(See Tanks and Towers.)

Tractors—Electric, Industrial.
Baker R. & L. Co.
Collins, J. D.
Elwell Parker Elec. Co.
Regnas & Co., J. R.

Transmission—Power.
(See Power Transmission Machinery.)

Transfer Points.
Adams Co., Geo. H.

Traps—Return Steam.
American Blower Co.
Morehead Mfg. Co.

Trucks—Auto.
Baker, R. & L. Co.
Corbitt Motor Truck Co.
Packard Motor Car Co.
Triangle Motor Truck Co.
White Co., The
White Hickory Motor Corp.

Trucks, Canvas.
Lane & Bro., W. T.

Trucks—Electric—Inter
Baker, R. & L. Co.
Collins, J. D.
Elwell-Parker Electric Co.
Regnas & Co., J. R.

Trucks— Hand & Elevating.
Collins, J. D.
Elwell-Parker Elec. Co.
Handy Equip. Corp.
Hulme, J. S.
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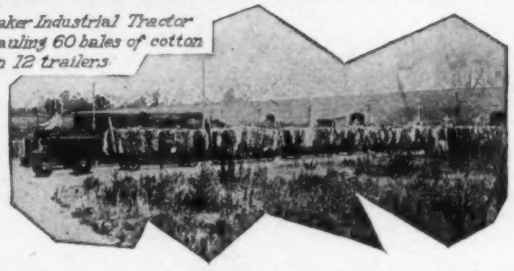

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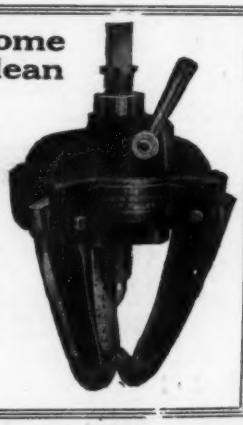

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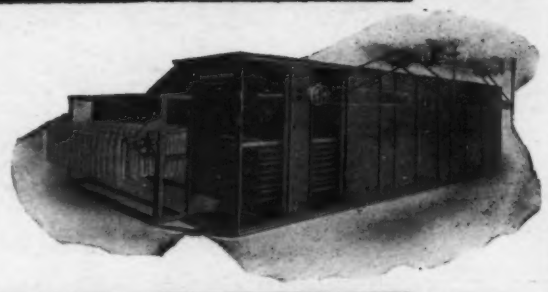

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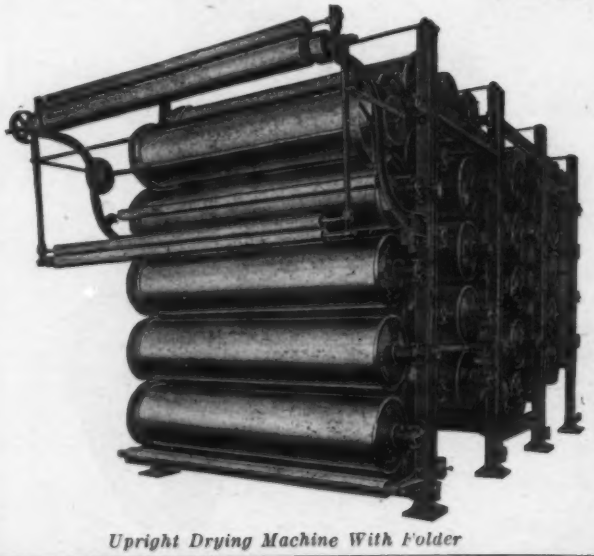

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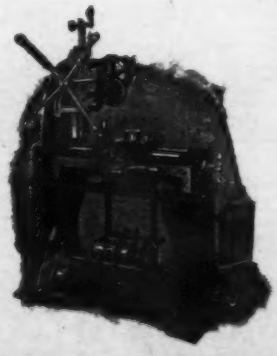
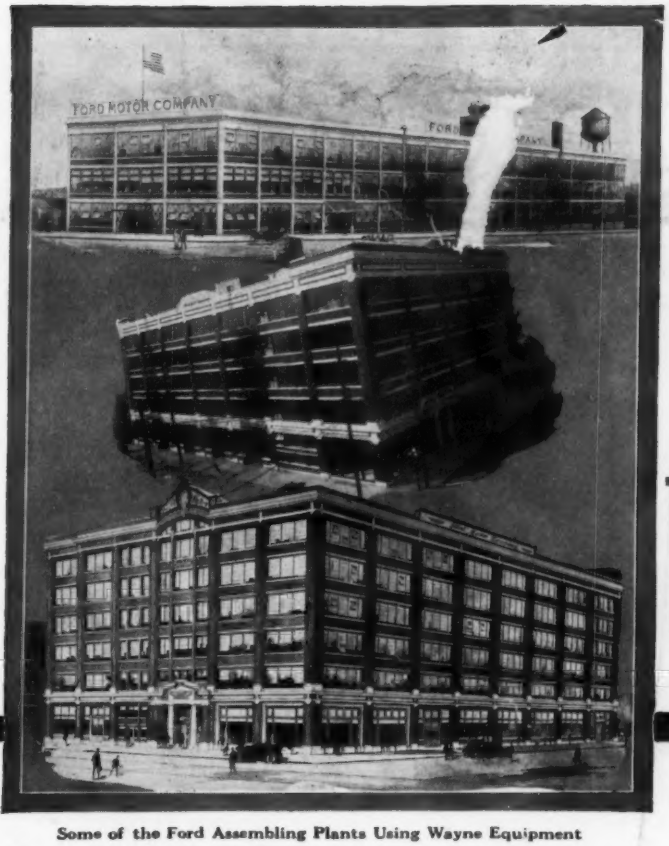
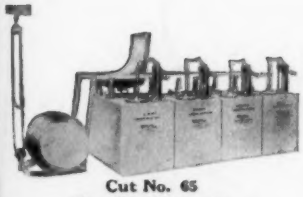


Cut No. 224
Portable wheel tank for lubricating oil



Some of the Ford Assembling Plants Using Wayne Equipment



Cut No. 65
First floor lubricating oil battery

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